Covering all Acorn machines

Acorn COMPUTING

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- 3D graphics
- Expert multimedia

DECEMBER 1994 Vol.12 No.10 £3.95 Hfl 17.95

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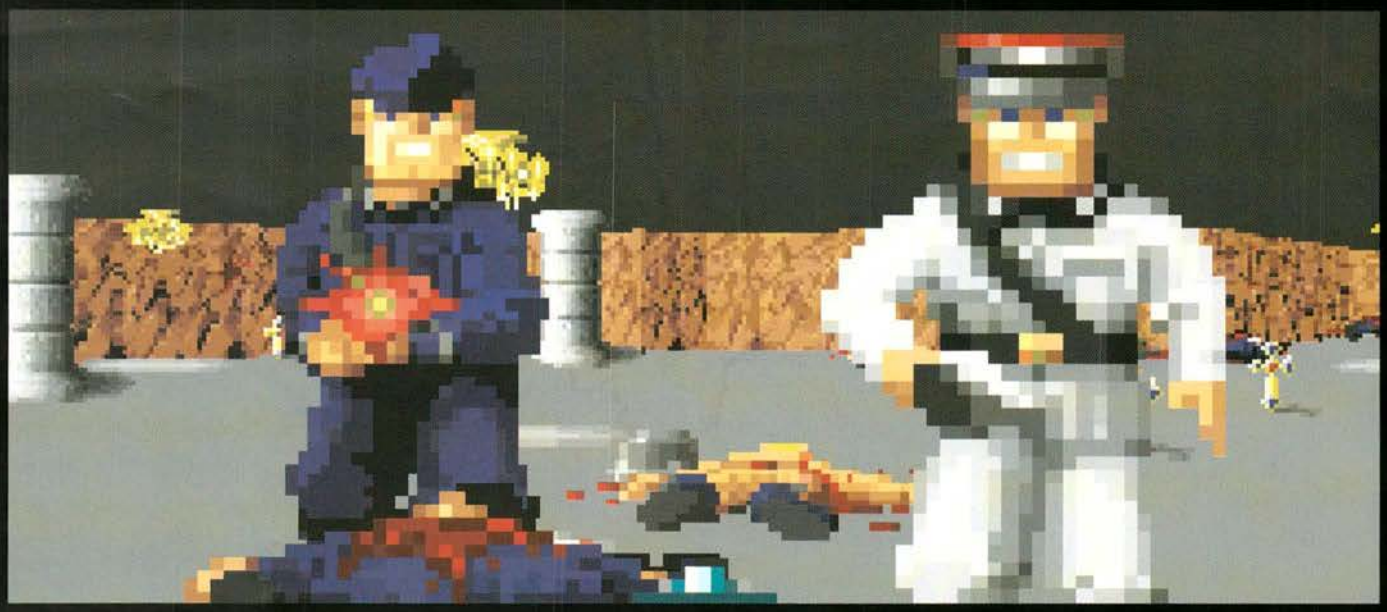
POWERSLAVE SOFTWARE PROUDLY PRESENTS

Wolfenstein 3D™



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(Screenshots from Archimedes)

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* Requires at least 1MB of RAM and RISC OS 2 or later
Price includes postage and packaging
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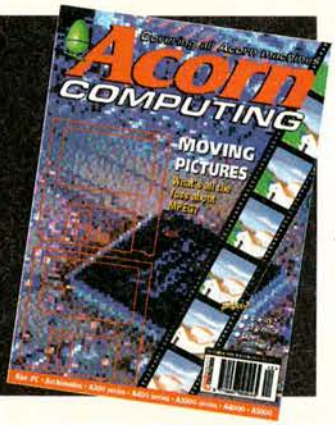
Special Holiday issue on sale 1st December

Moving Images

WITH MPEG, Yellow, Red and White books about to hit the Acorn market, Acorn Computing takes a look at the definitive method for digital video storage and playback, starting on Page 17.



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THE MEGADISKS

Britain's best Acorn cover disks contain hours of fun and a host of useful utilities linked to our editorial features to make the magazine come alive on your desktop.

Full details about the packed Megadisk – see Page 4.

- **Voyager Demo**
  Deliver the parcel to the spaceship Discovery in Sherston's latest educational adventure.
- **Cannon Fodder**
  A very special version of the blockbuster combat game from Krisalis.
- **3D Vector Graphics**
  How to produce real 3D graphics.
- **Desktop Ludo**
  A classic board game brought to life on your Acorn.
- **Public Domain**
  Lyapunov, NetCtrl, PC_Utils, User_Sel, CMosEdit, RamDisk 2, Tortoise and Whoop

Subscribe now! – See page 68

SUBSCRIBE to Acorn Computing and you'll get an amazing value-for-money deal that beats all our rivals: Not only do you get a whole years-worth of issues for LESS than any other Acorn magazine, 32-bit owners get TWO disks every month.

See Page 68 for details of this unbelievable offer.

GET YOUR NEWSAGENT TO RESERVE YOUR COPY NOW – SEE PAGE 48
AVAILABLE AT W.H. SMITH AND ALL GOOD NEWSAGENTS

– TWO MEGADISKS –

Next month, and for one more great issues, Acorn Computing will again have two packed Megadisks for you to sample – don't miss out.

Most of the editorial and adverts in this magazine were produced with ArtWorks and Impression from Computer Concepts.

The MegaDisks

Disk One

- VoyagerDemo
- Programs from the magazine
- PD Utilities

Disk Two

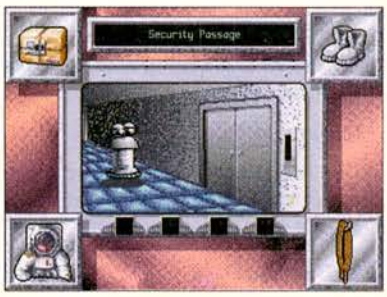
- Cannon Fodder
- 3D Vector graphics
- Desktop Ludo
- More PD

Voyage of Discovery

THIS is the latest education adventure from Sherston Software (0666 840433) and is aimed at children between 9 and 13 years of age, but it makes a good adventure game even if the puzzles are easier for older people. With a science theme you find yourself in the year 2056 as a courier for Intercargo Express Couriers. You have a parcel to deliver to the captain of the space ship Discovery.

Leaving Heathrow's Space Terminal you have three days to complete your commission. But once you get to Discovery you find the vessel empty apart from BORIS – the ship board computer which seems to be having something of a personality crisis.

Your task on this version of the game is to get out of the cargo hold and into the main part of the ship...



Double-click on the VoyDemo in the Filer window and the Voyage of Discovery icon should appear on the iconbar. Although Voyage installs on to the iconbar, it is not multi-tasking and clicking on the icon causes the program to take over the entire display. To quit the demo at anytime, simply press Control+Q. The full version costs £31.95.

Programs from the magazine

Databay: Hacker cheats for: Flashback, Premier Manager, Small and Speedball II
TechForum: Anima – a demonstration of simple animation using bank switching and vertical sync. Divy – examples from readers for creating machine code which divides by a constant. Printing – stop printer hang ups.
Reviews Index: Who said what, about which, where and when?
8-bit programs: Run these on your BBC B or Master via a serial link, or on your RISC OS machine with the !65Host

Releasing memory

IF YOU have a 1 or 2Mb machine and are having difficult getting programs to run then try the following to free as much memory as possible. Press Control+Shift+Break to boot up a completely *empty* machine. Next, click on the Task Manager Icon and scroll down to the Font Cache setting. Drag this red bar to the left so that the Font Cache is 0k.

When you load a program make sure you have *de-archived* it first as your machine may not have enough room to load ArcFS and the program at the same time.

Public Domain

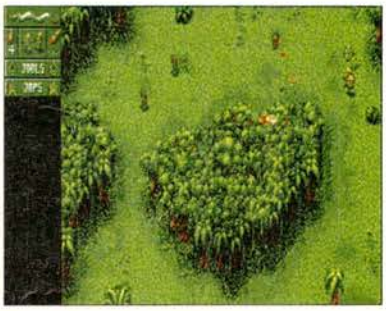
CMosEdit: Allows control of the CMos ram locations 1-239 down to bit level. This allows locations to be set which are unaffected by Configure, and also allows you to easily see which locations do what. Part of the editor window gives a brief description of the location you are editing, where known.
RamDisk2: To allow a more permanent RamDisk, loads from disk as soon as this application is booted, and saved when it is quitted – typically by a shutdown.
Tortoise: With fellow patrollers William and Stephanie, Captain Tortoise polices your iconbar to make sure intruders are arrested. Known felons: Wanda, Neko and DeskDuck.
Whoop: Add this module to your boot sequence and replace your standard beep with a more expressive sound – recorded with Oak Recorder and available courtesy of Solent Computer Products.

Cannon Fodder – Needs 2Mb ram

KRISALIS Software (0709 372290) has produced a very special version of their latest blockbuster release – Cannon Fodder. This massive game will run from a hard disk if you have one. You have four phases of combat in this version, set in the jungle and the arctic hot-spots. Your job is to lead your team of commandos through the terrain and eliminate the enemy, their bases and equipment.

With music and sound effects your squad will follow your every command, swimming across jungle rivers or climbing down snow covered outcrops.

The full version of the game costs £29.99 and consists of lots and lots of missions, starting with 15 raw recruits which you must keep alive – deaths are marked by a white cross at base camp – long enough to enjoy their status as heroes.



Your soldiers are very obedient and will swim into rivers at your command. This is not a wise move as you are very easy to shoot in such a position. Keep your eyes peeled as your opposition hides and walks around things whereas your recruits will happily look at a tree for as long as you like.

You should be able to get through the first phase in the demo with minimum losses. Just as well really as there are only two squadies. As you move deeper into the jungle you'll find buildings which endlessly provide replacements for the soldiers you despatch. The solution is a grenade – or a tub of bazookas.

More advanced mission gives you greater control – you can split your troop into small units to give covering fire and if you're lucky enough to come across military hardware such as bazookas or trucks... Well it would be a shame to let them go to waste. A word of advice; don't collect the mines.

Lose your recruits and the game is over.

Controls

The game is entirely mouse-controlled. Click Select where you want your troop to go and they will follow. Hold down Adjust and they will fire. Walking over objects allows you to pick them up while you can throw grenades by holding down Adjust and tapping Select. If you want a breather, press P for pause.

Programs from the magazine

3D Vector Graphics: The first programs in the series explaining how to produce real 3D graphics on your Acorn 32-bit machine. These programs eventually build to a complete working system.

FAULTY DISK?

If your cover disk or 32-bit subscription disk has a physical fault – doughnut won't rotate in the sleeve, disk errors and so on – please return it for replacement to:

PC Wise Ltd
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Business Park
Dowlais
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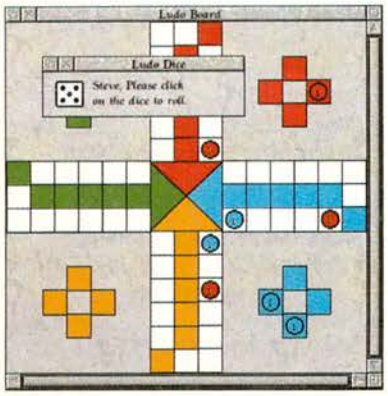
Mid Glamorgan
CF48 2YY

If there seems to be a fault with one of the programs please contact the magazine by post describing your machine set- up and exactly what happens when you run the program.

Desktop Ludo: Play it again, Archie

This is a desktop version of the classic boardgame Ludo. When loaded it will just stick its icon on the iconbar. When the icon is clicked with Select it will open a window with entries for four player names. These can be edited but the maximum length of each name is eight letters.

Beside each name are two small icons. The left-hand one indicates the player is a human, the other shows the player is computer-controlled. If neither is highlighted that player is not in the game.



When the last name is entered or OK is clicked this window closes and is replaced by the main board and dice windows. To play, just follow the instructions in the dice window. The rules are listed below:

The rules of Ludo

The object of the game is for each player to move all his/her pieces around the board and into the home position in the centre of the board. The first player to accomplish this wins.

- A piece can only be moved out of the start position if the dice is a six.
- When a player throws a six, after moving, he/she has another turn.
- If a player's piece is landed on by an opponent's piece, the player's piece is returned to the start position.
- When in the home run, the piece must be moved the exact number of positions to land on the home square. A piece is bounced back by the number of places by which it overshot the home square.

It is not advisable to have all computer players as, since the game is continually playing, any other programs are slowed down and the program itself is often too busy to respond to menu clicks.

A. L. Stoner

Public Domain

Lyapunov: A newer way to generate fractals which has the astounding serious scientific property of producing nice pictures.
NetCtrl: Designed for the network system manager to be able to control the network from a monitor computer.
PC_Utils: A range of additional features are added to the normal Desktop ones, most of them derived from Windows 3.
Usr_Sel: Allows you to quickly open directories or files and execute commands by selecting them from a list.

ICS

0151-625 1006

Selected prices 14th October 1994

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Classcardz for Resultz	COLT	£20
Classcardz for Wordz	COLT	£20
Design Processor	OAKS	£1150
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Landmarks Microworlds - The War Years, age 9-13	LONG	£22
Lemmings & Oh No! More Lemmings	KRIS	£23
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– The 1930s	LONG	£47
– The 1940s	LONG	£47
– The 1950s	LONG	£47
– The 1960s	LONG	£47
Sim City 2000	KRIS	£31
Talking Clocks	TOPO	£32
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Betsi, age 7-12	4MAT	£32
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No sense of adventure

BARBARELLA is a film that Jane Fonda probably wishes she could forget. It's a typical product of the early 60's, a mish-mash of social comment, science fantasy and sex.

There's one character from the film whose name is probably known to more people than know where it came from – Duran Duran. He's a scientist that Barbarella is supposed to be looking for but who turns out to be the baddy in the end – don't anybody complain I'm giving away the plot of a 30 year old film, *please*.

Not much relevance to today's society you might think, or Acorn computers? Perhaps, perhaps not.

The film depicts an evil society – which is completely beyond redemption – that gives its youth a good start by throwing them out into an icy wasteland, to do as they will without the guiding hand of authority, but with the danger of complete freedom and anarchy.

I wouldn't claim that Barbarella is a particularly prophetic work but if there's one thing that the Internet gives, it's that same type of freedom. Freedom to distribute any rumour, opinion – or fact, though it's impossible to tell one from the other – across the entire world in a matter of hours.

Freedom to gather any image, any thought, whether wrong or right, whether morally correct – because who's to say which moral code is the right one?

On the Internet there are no national boundaries, every subject under the sun can be discussed. A spy (or intelligence operative, if you prefer), or simply a discontented employee could take a national or business secret and distribute it to every one of the five million people who access the Net.

Yet despite its size and scope it's a place where you can become completely isolated in your own little world of interests. In the US, radio stations play one type of music day in and day out. If you like jazz you tune into the jazz station, if you like Country and Western, you listen *only* to that.

It is, to my mind, a problem worthy of concern because the people who listen to their favourite music are *never* exposed to anything else, they can never expand their horizons beyond the little world they've built for themselves.

And it's the same on the Net. Once you have defined your range of interests you need never step beyond them. If you are a fan of Kate Bush you can subscribe to alt.fan.kate-bush and never receive any information on anything else, ever.

The isolation could become even worse with the advent of Interactive Multimedia, because then even your visual images will only be what *you* are comfortable with. Why take the risk of experiencing something you might not like when you know you can spend a quiet evening watching those things you know you will like?

We won't be a nation of couch potatoes, we'll be a world of them.

But is it all bad? Well not entirely. There are some good things about the Internet – which won't be true of IMM when it gets video conferencing.

The other day I had a query related to choreography (don't ask why), so I went on to Usenet, subscribed to *alt.dance.ballet* and posted the question. Within a day I had answers from people across the world.

But who were these people? Were they old, young, male, female, black, white, Christian, Buddhist, atheist? I don't know, nor do I care. On the Internet everyone is equal, and no one is more equal than any other – unless they have a faster modem.

Steve Turnbull takes a look at what the freedom of the Internet really means

Steve Turnbull – Editor

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Vision on

IF making your own videos interests you then take a look at Sonamara's (0626 873763) Video Maker's Pack. This consists of hardware and software – Sonamara Genlock Adaptor and Clares' Titler – for use on your RISC OS machine, plus the latest edition of Computer Video Made Easy and one year's free telephone advice and help on any aspect of using video with and without a computer.

You can use the Video Maker to produce high quality videos with professional titles and effects without using any internal expansion slots. The pack works with Hi8, S-VHS, VHS or Video 8 and normally costs £450.76. However, for the remainder of 1994 you can buy this for just £365.

Play on

DUE to the phenomenal response of the professional music world to Sibelius 7, Sibelius Software (01223 302765) has moved offices to: 75 Burleigh Street, Cambridge CB1 1DJ. To celebrate its expansion it is inviting all current users of Sibelius 6 and 7 to a series of office-warming parties in November.

The BBC World Service has also being paying homage to the software with a feature on its arts programme, Meridian. As well as an interview with Paul Patterson, Professor of Composition at the Royal Academy of Music, there was a demonstration of Sibelius 7's latest playback facilities.

Orders on line

FIRST Computer Centre (0113 2319444) has a bulletin board to allow customers to place orders, download software and request technical assistance. It has now added an Acorn file area to the board and if you want to contribute with data or programs you think will be of interest to others, the BBS number is 01132 311422.

The board runs 24 hours and up to V32bis 14,400 baud. Use the standard 8N1 communication protocol and Ansi or AnsiBBS terminal emulation. The Fidonet number is 2:250/356.

Primary bundle

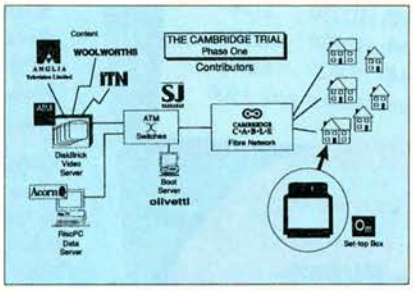
THE NCET Primary CD-Rom Software Bundle is a new initiative from Cumana (0483 503121) and consists of seven CD-Roms plus a pair of mains-powered stereo speakers. It was initially developed as NCET's selection of software, which formed part of the Acorn package offered to schools participating in the DFE's CD-Rom in Schools Initiative early this year.

First is *Picturebase – Victorian Britain* , a program giving an introduction to life in Victorian times. Next is *Frontier 2000* , a computer-based simulation covering the history of the Border Region from 43AD to 1991. Text, narrative, photos and moving images are used in *Creepy Crawlies*, giving an insight into the lives of spiders, beetles and bugs, while *Usbourne Exploring Nature* takes an activity-based approach to exploring the plant and animal world.

Photobase Landscapes contains 2,000 high quality photographic images with *Hutchinson's Multimedia Encyclopaedia* giving up-to-date information on the world with 21,000 text articles and 2,500 photos. Last but not least are *Sherston's Naughty Stories*, a collection of 12 animated tales which can be read by the computer as sentences or individual words. The total value of the software comes to £690 but Cumana are selling the collection for £575.

Online Media – phase one

THE 30 September 1994 was the date for the *switch on* of Online Media's digital interactive television trials using ATM technology. With partners Anglia TV, ATM and Cambridge Cable, Online Media's set-top boxes were in situ in the trial homes in Cambridge.



The number of homes will be increased throughout 1995 and, initially, subscribers will not be charged for the service, although an experimental pricing formula will be introduced to test the market. The consortium expects the venture to be fully commercial from mid-1996.

So how have the trial families reacted? The Knight family are full of enthusiasm: "I think it marvellous that I will be able to tune into the news whenever it suits me – especially when the international news service is developed" commented Lynne Knight, while for husband Brian, "The set-top box system will be extremely helpful for the children's education, but is has so much potential in other areas such as business." For their children Gemma (aged 9) and Katie (aged 7) it is the games and video-on-demand which excites them.

ARMful of sound

SMARTCD+ is a commercial version of the CD player application by Ian Giblin. As well as remembering the title, track names and playlists of your audio CDs, when you index a CD it will automatically detect which one it is.

You can choose the tracks from a display or program a sequence into memory. If you want to make a cassette copy of tracks, SmartCD+ will help you split the tracks across two side of a cassette – re-ordering them if necessary, as well as generating inlay cards quickly and easily. The price – £10 from the ARM Club.

Also added to the catalogue is TypeTutor – also priced at £10. This is a typing tutor with support for the Risc PC keyboard layout. The pack includes a touch-typing tutorial and elementary exercises of the home keys, each finger and extra keys, as well as sentences. You can also add your own exercise files.

The ARM Club has also upgraded the Utilities Packs to remove minor Risc PC incompatabilities. You can get the latest version by sending back your original disks and 50p. You can contact the ARM Club at FREEPOST ND6573, London N12 0BR.

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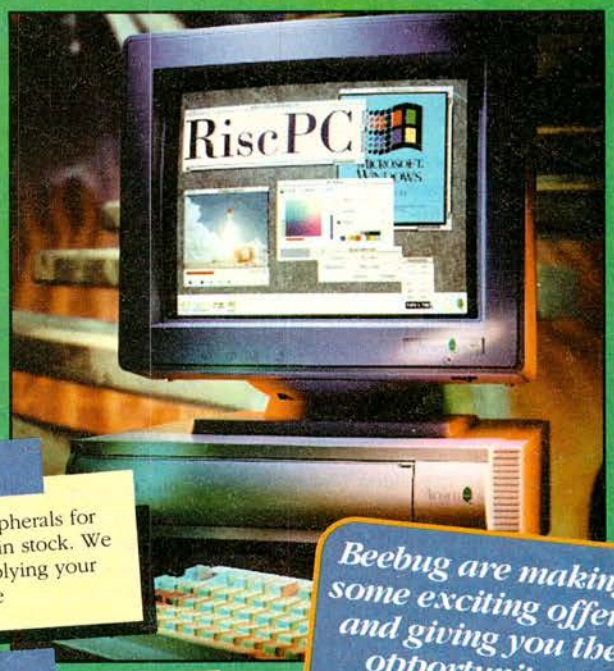

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We have considerable experience with the RISC PC and can offer you advice on choosing your system and help with software compatibility issues. You may also need some help with RISC OS 3.5. We offer customers free on-going technical support.

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5215g	Beebug 250Mb second hard drive	£184.00
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4603e	Ethernet Interface	£ 99.00
4624e	Access Interface	£115.00
3041e	PC Card and DR DOS *(Available Jan '95)*	£ 99.00
4612e	User/Analogue Port	£ 44.95
1972c	Sound Card	£ 69.00

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Open dealing

MICROTEST (01208 73171) in Bodmin, Cornwall is holding its third annual open day on Sunday 20 November between 10am and 4pm. This year's event will be held at the Cornwall Coliseum, Carlyon Bay, near St Austell.

There are over 35 Acorn companies in attendance from 4Mation to Topologika, Cumana to Widgit Software. Acorn will also be there as will the entire Acorn range of computers from the Pocket Book II to the Acorn Risc PC.

Cut-price fun

SOFT Rock Software has released five budget-priced games for the RISC OS machine costing £3.49 each – or £3 if more than one are bought together. In addition, Escape/Return from Exeria, Guardians of the Labyrinth, Drop Rock, Switch and Floopy are available to Risc PC owners, *squashed* on to one disk for just £7.99. These games are available without sound – hence the low price – and for a limited period.

New and enhanced versions which will work with all RISC OS machines will be available in 1995 priced at £7.99 each. The New Year will also see the launch of Trellis an adventure interpreter which works on all RISC OS machines. Trellis makes use of files you create in your favourite text editor.

Full details are available from: Soft Rock Software, FREEPOST (BS7978), Westbury-on-Trym, Bristol BS10 7BR.

Easy does it

TEXTEASE is the latest product from Ivoryash (0684 73173). This is an easy-to-use text and graphics presentation package which should satisfy the computer novice and expert alike. You can use TextEase to produce letters, notices, posters or overhead foils and it only costs £25. There is also a junior version in preparation for next year aimed at children from six years of age.

The features include a dynamic help text line, button bar, instant dragging and sizing, styles and effects, cut, copy and paste, multiple views, undo and redo as well as shadows. The package supports paper from A5 to 9m x 9m in size, with clipping and glueing marks added where needed. You can save your work in its native format or as a Draw or text file.

Acorn gives away £25,000

NICHOLAS Breakspear Secondary School in St Albans won the Acorn Education 2000 competition recently. Their prize is a £25,000 bursary to set up an Acorn Research Base at the school to allow pupils to join the *information superhighway*.

The competition invited schools and colleges to envisage a classroom of the future and submit proposals to show how developments in computer technology could be used to create new education opportunities. There were 400 entries and Nicholas Breakspear School won through with their proposal to use Acorn computers to access on-line information via satellite, TV, weather station and Ceefax/Oracle telephone links for analysis and dissemination across the school, and for use as a cross-curricula educational resource.

The two runners up – Steeple Morden Primary School in Hertfordshire and Hillcrest School and Community College in Dudley – receive Acorn Pocket Books.

Is IT worth the risk?

A NEW report from Templeton College, Oxford has concluded that major Information Technology projects have a high failure rate due to IT risk factors being under estimated.

Written by Catherine Griffiths of IC-Parc Imperial College and Leslie Willcocks of Templeton College, 'Are Major IT Projects Worth the Risk?' states that IT risks is a little understood, neglected area of management resulting in most major IT projects falling short of their original objectives.

Often projects are aborted before full implementation or have needed massive amounts of extra funding to succeed. The report defines the risk factors and provides a practical framework for effective risk management.

The study focuses on seven major IT projects: TradeNet system of Singapore, The French Minitel system, Videotex implementations in UK and Germany, Computerised Rural Information Systems Project (CRISP) in India, the Operational Strategy of the UK Department of Social Security and the Transfer and Automated Registration of Uncertified Stock (TAURUS) for the City of London.

All the cases have been considered of national importance to their initiators and to have been unique. They also required specialist combinations of abilities that are unlikely to have existed on any previous projects.

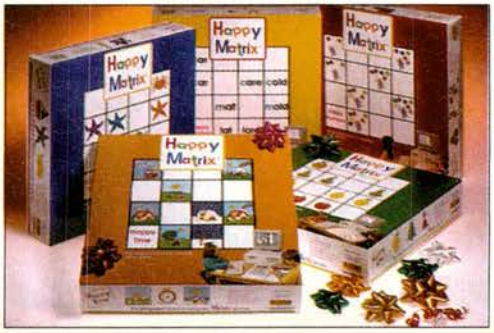
Only the Singapore TradeNet implementation is considered successful and to have provided the groundwork necessary for further paybacks to the country's economy. This project had the greater scale and complexity and the reasons for the success are examined and comparisons drawn.

Four key areas of risk managements are highlighted: Governance, project management, economic need and learning. The report costs £10.50 and is available from Templeton College (0865 735422).

Soft savers

CREATIVE Curriculum Software (0422 340524) have launched a new label called Happy Software. This label will feature a family of five integrated board and computer games for school and home.

The software is complementary to the board game and is aimed at children between 3 and 9 years of age. The Happy Matrix comes in a set of five: Reading, Number, Time, Life, and Sea. Priced at £29.74 they concern linking, matching, sets and progression.



Early years

ACORN has launched a new Learning Curve pack for the Christmas market – Early Years. In addition to a 2Mb A3010 with monitor, £499 buys you a selection of some of the best educational software around for pre-school and early years learning.

If you want a monitor with your 2Mb A3010 the addition of the AKF52 puts the price at £749. As an added bonus, with either of the 2Mb A3010 packs you'll get the Action Pack programs for free. There are also A4000 and Risc PC options.

Talking StartWrite comes from Icon Technology and is a fully-featured but simple-to-use word processor. Using the standard outline fonts you can add pictures into the text and choose to have each word spoken as it is typed. More specific to the early years are six products from 4Mation, Sherston Software and Cambridgeshire Software House.

Mouse in Holland introduces you to Martin Mouse who lives in a windmill. Journeying through the Dutch countryside, along the canals in Amsterdam and visiting an art gallery, Martin lives his life searching for fruit, cheese and moles. *Flossy the Frog* is also a graphical adventure which encourages exploration.

Talking stories are very popular and *Doris the Dotty Dog* tells the tale, in words, pictures and sound, of a well-intentioned but clumsy dog. Useful in expanding vocabulary and reading skills.

Gemini takes the subject of matching pairs – often called pelmanism. There are different sets of cards suitable for the very young but with the ability to develop with the child. *Amazing Maths* uses a game approach to practice arithmetic skills. The adult can set the numbers and operations used, from add, subtract, multiply and divide.

The pack is rounded off with *PaintPot* produced by Emerald Publishing and Acorn themselves. This is an enhancement to the original Paint package which shows how to use Paint with the help of a book and disk. As well as examples, there is a clip-art library of animals and sea creatures, as well as ideas for projects using Paint.

Risc PC and CDs

CUMANA (0483 503121) is launching a Risc PC CD-Rom System which is a complete ready-to-use multimedia computer for the home and school. The system comprises a Risc PC with 5Mb ram, 210Mb hard disk and Cumana Indigo CD-Rom drive.

The system also has a 14in or 17in monitor and is complemented by an education CD-Rom software bundle chosen from a range of seven different packages. Prices start at £1,599, although other software packs are available with a Primary, Maths or English bias.

What's on

European Technology in Learning '94
16-18 November 1994
NEC, Birmingham
Contact: BIC (0254 663922)

ARM Club Open Day
19 November
St Mary's Activity Centre, Sedgley, Wolverhampton
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20 November 1994
Cornwall Coliseum, St Austell, Cornwall
Contact: Microtest (01208 73171)

Computer Shopper Show
1-4 December 1994, Olympia, London
Contact: Computer Shopper (081-742 2828)

Acorn Computing Open Day
4 December 1994
Portland Hotel, Manchester
Contact: Acorn Computing (0625 878888)
- ***Your chance to meet the Acorn Computing Editorial Team***

BETT '95 Technology in Education
11-14 January 1995
National Hall, Olympia, London
Contact: EMAP (081-984 7711)
- ***Your chance to meet the Acorn Computing Editorial Team***

The Education Show 1995
2-4 March 1995, NEC, Birmingham
Contact: EMAP (081-984 7711)

Driving range

TWO new products have been added to the Eesox (0638 578597) of graphics tablets. The Artpad has an active area of 5in x 4in and comes with a pressure sensitive stylus and Eesox driver for £159. Alternatively, you can buy the Artpad with Studio24 software for £239.

The second tablet is an all-in-one mouse, digitiser tablet and drawing board. You can use it to replace a mouse but if you use it with the A3 drawing board it can be used as a professional digitising tablet. The drawing board comes complete with a parallel motion and set square for use as a standard drawing board with cables, power supply and software. The College Board/Digital costs £175.

On the right lines

THE International IT Summit in Glasgow in October saw the launch of The Kelly Partnership's (03552 34677) networked multimedia system which is reportedly the first in Europe and was produced in association with Online Media.

The Kelly Partnership has created an innovative multimedia solution which may be tailored to a wide range of multi-site applications from corporate communications, point-of-sale kiosks, interactive terminals and staff training.

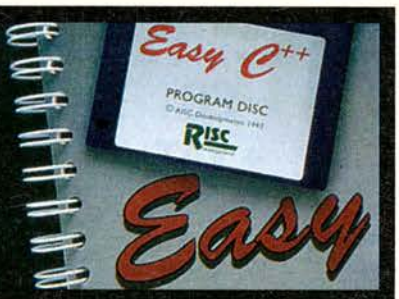
Using RISC technology and the ARM processors, the system is capable of creating, distributing and delivering information and advertising to standard television or interactive touch-screen displays.

Label it

PAPERSOFT (01442 391967) is a new company specialising in software templates for labels and pre-printed stationary for Acorn computers. Templates are available in Impression, ArtWorks, Advance, Ovation, First Page and Pendown formats.

The Paper Direct templates include all designs and paper and cost £29.95. Templates for Avery labels include all the A4 label sheets for both laser and inkjet printing, as well as postal handling labels. Papersoft is also in the process of producing templates for other leading brands.

Oops – C++



BEEBUG (0727 840303) has announced the release of Easy C++ and a new C++ compiler. This is not a C to C++ translator, but rather compiles C++ source code directly to ARM code making it quick and easy to use. The price is £99 but you can upgrade from Easy C for £49.

It is a full implementation of C++ conforming to the latest Stroustrup text and supporting templates and exceptions. The new system uses the same wimp front-end as the original Easy C package so you can compile programs, link and run them via the mouse.

Easy C++ comes with ANSI C and IO stream libraries and includes a Make utility, integrated ARM assembler, source-level debugger (currently for C programs only) and a library facility for maintaining and creating libraries. It supports Throwback so that errors can be passed back to compatible editors for correction. If you buy the first release you'll receive a free upgrade to the next version which will include a C++ compatible debugger.

Speedy mail

SIREN Software (0161-796 5279) has announced the addition of the Speedcom to their range of modems. There are three Speedcoms, the first is the Speedcom+B which is at 14,400bps modem for £135 while the Speedcom+Et costs £175 with speeds up to 19,200bps and finally the Speedcom+Bf at £225 with a top speed of 28,800bps.

Games people play

ELSPA – European Leisure Software Publishers Association – has launched the Games Players' Charter. This is a series of commitments and guidelines to parents and games players of all ages. The Charter is incorporated into a new leaflet called A Parents Guide to Computer and Video Games.

Two million copies are being distributed nationwide to coincide with the Christmas season, which normally accounts for 60 per cent of all games sales. The Charter contains a combination of common sense advice to parents and players and commitments from the industry to act responsibly. As some parents tend to find computer games inaccessible they have tended to view them with suspicion – the Charter aims to redress the balance.

Live and kicking

EARL'S COURT was the venue for this year's *Live* exhibition – the Consumer Electronics Show featuring the latest and greatest in electronic gizmos and consumer gadgets. Acorn Computers were among the many exhibitors where the Risc PC and the Pocket Book II were being used to produce a daily newsletter.

Talented youngsters from schools around Britain were invited to report on the technological wizardry on display and the various celebrities who were in attendance. Tavistock College in Devon provided one of the teams of newshounds and being winners of a recent TES newspaper competition, these 17 year olds were no strangers to DTP and were soon experimenting with Impression's Publisher Plus.

Well over 40,000 copies of the *Live 94 Daily News* were printed during the six-day event, with many stories being typed directly into Pocket Books before being uploaded onto the Risc PCs for final editing and layout. Digitised images were also incorporated from portable video cameras and scanners, before an etch plate was created and the final printing on a press supplied by AB Dick.

Rajesh Sinha

Super server

A MOTOROLA-based Super Server advanced file server has been developed by Datathorn (081-502 4221), enhancing LAN performance but keeping management and installation simple. Computers of all types can co-exist on the network – RISC OS 3+, Apple Mac and IBM PC – using the same server and comfortably out-performing networks built around existing filing systems which are generally limited to working on one platform.

Only one server is needed for up to 200 machines and has found favour with small schools to large firms of City solicitors. With a high speed of data transfer, it is also attracting interest from merchant banks and the like.

Using a Risc PC as a net-station complements the high performance of the server, allowing PC and Windows hardware and software compatibility with VT220 terminal emulation, Unix, X-Windows as well as using the full range of Acorn software.

Further to this, Datathorn has developed a Network Installation Pack containing all hubs, cables and connectors to install a complete network. The cables are made to CAT5 10-base T standard or to thinnet specification and can be colour coded and numbered at no extra charge.

Customers sketch their requirements on the order form and Datathorn audit the design, specify the lengths, colours and numbers and deliver the completed pack. By installing its own plastic trunking, customers save money and with fully-tested ready-made cables there is little to go wrong.

Datathorn has also developed a diskless Acorn machine with an auto-boot option on the TCP/IP based Super Server. Engineered by i-cubed, the computer logs into a public directory as soon as it is switched on. Auto-booting means a stable and transparent network ideal for school where no technician is present to support non-technical teaching staff. The first installation was at St Aubyn's School in Woodford Green, proving that networking benefits are available to small schools with limited technical resources.

Showroom open Mon-Sat 10-18.00 hrs (All prices exclude VAT)

CD-ROM

All the following CD-ROM drives are Toshiba units and are PhotoCD compatible (multi-session) and include a driver for CDFS =>2.20

Internal Drives (RiscPC only)

XM-4401B Tray 300ms, 300kb/s	£200
XM-3401B Caddy 200ms, 330kb/s	£250
XM-3501B Caddy 200ms, 600kb/s	£375

The above do not include SCSI interface, see below.

External Drives (for all machines)

XM-4401B Tray 300ms, 300kb/s	£275
XM-3401B Caddy 200ms, 330kb/s	£325
XM-3501B Caddy 200ms, 600kb/s	£450

The above do not include SCSI interface, see below. Add an extra £25 for A3000 for podule case.

SCSI cards

Morley uncached SCSI card	£130
Morley cached SCSI card	£170
Cumana SCSI II card	£200

The above cards are suitable for A300, A400, A3000 (Ext), A540, A5000 and RiscPC. For others see MultiPodules.

Hard Discs

A5000/RiscPC 2nd Internal Drive

210Mb IDE 14ms Cache (~1Mb/s)	£159
420Mb IDE 14ms Cache (~1.5Mb/s)	£259
540Mb IDE 12ms Cache (~1.5Mb/s)	£399

The above include all cables, screws and instructions. All the above drives are Connor as used in the RiscPC

A300/A400 Series Internal (IDE)

210Mb 14ms Cache (~1Mb/s)	£239
420Mb 14ms Cache (~1.5Mb/s)	£339
540Mb 12ms Cache (~1.5Mb/s)	£479

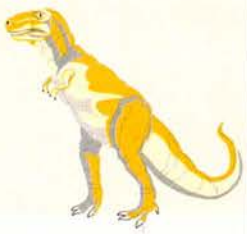
The above include all cables, screws and instructions. Add £79 for ext case and/or £25 for A3000 podule case. **All the above drives are Connor as used in the RiscPC**

Syquest Drives

IDE 105Mb Internal for A5000/RiscPC	£259
(Above Includes one cartridge, cables & driver software)	
SCSI 105Mb External for all Machines	£349
(Above Includes one cartridge, exclude SCSI card)	
105Mb Syquest Cartridges	£55

TopicArt

Single disc clipart containing approx. 50 high quality draw format clip art images, each on a single subject. Comes with mono reference sheet. 12 subjects are available now. Please specify when ordering. Site licences are £16+VAT per disc, please ring for further details.



TopicArt9 - Dinosaurs

Subjects avail.
1 - General
2 - Transport
3 - Costumes
4 - Entertainment
5 - Bugs 2 Slugs
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7 - Sports Equip
8 - Sports Figures
9 - Dinosaurs
10 - Symbols
11 - Tools
12 - AnimalsGB

£8 + VAT per disc

TopicArt catalogue now available. £1.50 Inc VAT & p+p (cheques only)

Buy 4 TopicArt discs get one free
not incl SpecialArt

TopicArt12 - AnimalsGB

TopicArt4 Entertainment

QuickTile v1.02 £25+VAT

Up until now it has only been possible to print posters from Draw & Sprite files. Now with QuickTile you can create posters from ANY RISCOS application, including Impression. Simply enter the size of poster required & select PRINT from the application! QuickTile does the rest, printing each tile with crop marks and tile references. RiscPC compatible.
Requires RISCOS 3.10 or later.
Return Disc with SAE for upgrade.
Upgrade from Tiler for £15+VAT.

DIY Ink Jet Refills

Single Refills (req an orig cartr.)	£7
Twin Refills (Black only)	£12
125ml / 400ml Cleaning Kit	£4 / £10

Available in Black, Cyan, Magenta, Yellow, Red, Green, Blue, Brown

Please specify colour(s) required when ordering.These do-it-yourself refills can be used with any printer where the head and ink reservoir are combined, ie, DJ-500, BJ10/200. Please do not send empty cartridges. Please note that colour quality may not be 100% from a black cartridge refilled with another colour. We cannot guarantee against dried up empty cartridges and/or blocked nozzles.

QuickSound £10

Load, play, convert & resave Armadeus, Tracker and raw data sound samples. Apply special effects including Reverse, Echo, Max Vol, alter replay rate and resample frequency. Convert samples into modules for use with the RISCOS sound system. Create stand alone Utility mod's.

QuickShow £25

Slide show presentation and video titling package. Create sequences of frames containing text of any colour with drop shadows, outline shadows and rubout boxes using the RISCOS fonts. Sprites can also be included in frames, positioned and resized as necessary. Screens can be linked together with the sequencer with fades in and out.

SpecialArt (Xmas or Signs) £20+VAT (each)

Special editions of TopicArt consisting of a minimum of 4 discs full of clipart

Hardware, Software & Books (All prices exclude VAT) See us at Acorn World '94, Stand 86

All RiscPC's include 1yr on-site maintenance. **0% and low finance available.** We operate Acorn Assist for teachers & academics. **We now have many RiscPC systems in stock for immediate delivery.**

RiscPC 2MHD210 £1199
2Mb DRAM, 210Mb HD, AKF60 Monitor
RiscPC 5MHD210 £1299
4Mb/1Mb D/VRAM, 210Mb HD, AKF60 Mon.
RiscPC 9MHD420 £1599
8Mb/1Mb D/VRAM, 420Mb HD, AKF60 Mon.
Add £400 to above for 17" AKF85 Monitor

RiscPC Upgrades

4Mb Simm RAM	£120
8Mb Simm RAM	£220
16Mb Simm RAM	£425
32Mb Simm RAM	£POA
1Mb VRAM (Acorn)	£129
2Mb VRAM (other)	£169
1 to 2Mb VRAM Upgrade (exchange)	£Call
486 PC Upgrade (available ~Oct 94)	£99
MS-DOS 6.2 & Windows 3.11	£99
2nd Slice Case Upgrade	£99
Acorn Access for RiscPC	£119
Ethernet Interface Card	£99

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A3010 Action Pack 2Mb RAM	£339
A3010 Learning Curve with AKF30/40	£599
A3020 2MFD/AKF52 MultiScan System	£699
A3020 2MHD60/AKF52 MultiScan Sys	£849
A4000 2MHD105/AKF52 MultiScan Sys	£879

Add £55 for AKF50 Monitor (not A3010)

Software Packs

Learning Curve £42
Includes Acorn Advance & PC Emulator & demos of Applications & Games
Home Office £85
Includes EasiWriter2, DataPower, PipeDream4, PC Emulator & demos
The above software packs are ONLY available with any of the above computers except the A3010.

Portable Computers

Acorn Pocket Book (256k)	£169
Pocket Book II (256k)	£229
Pocket Book II (512k)	£279
Psion 3a (512k)	£249
A-Link (requires RiscOS 3.1)	£42
PC Link (for IBM PC compatibles)	£60
Parallel Link for Pocket B'k or Psion 3/3a	£26
P Book/Psion 3/3a Mains Adaptor	£15
128k RAM SSD	£43
256k Flash SSD	£47
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A4 Portable 4MHD60 with PC Emulator	£1599
A4 Spare Battery (including carriage)	£55

Remember, Carriage is free on most items

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Acorn AKF60 14" 0.28dp MultiScan	£325
Acorn AKF85 17" 0.28dp MultiScan	£649

Hardware Upgrades

486sx25MHz Bare PC Card	£357
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486SLC50MHz PC Card 4Mb RAM	£570
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A3000 1-4Mb	£129
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A3010 2-4Mb	£105
A3010 1-4Mb	£145
A3020/A4000 2-4Mb	£89
A5000 2-4Mb	£89
A5000 8Mb	£259
A300-A400 8Mb RAM	£249

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A3010 HCCS Hard Disc Multi-Podule

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80Mb + User Port + 2 Slots	£295
120Mb + User Port + 2 Slots	£399
SCSI Archimedes Internal (Incl SCSI card)	
290Mb 15ms Cache	£340
345Mb 15ms Cache	£Call
A3000 Internal IDE Hardcards	
20Mb + User Port	£159
80Mb + User Port	£229
120Mb + User Port	£349

See also top of page for other hard discs and Syquest Removable Drives

Scanners/Digitisers

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ScanLight Video 256 A3000-A4000	£205
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Vision24 Colour Digitiser Int £96/Ext	£109
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RiscOS 3.1 Upgrades

A300/A440 Series (inc carrier board)	£97.88
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Bulk Pack of ten upgrades	£339.00

Please add £4 (Inc VAT) carriage to RiscOS

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Canon BJ-230	£280
Canon BJC-600 Colour	£370
Canon BJC-800 Turbo	£1150
Canon BJC-4000 Colour **NEW!**	£TBA
HP LaserJet 4L 4ppm (300dpi)	£480
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Add £40 to above printers for TurboDriver

Printer Consumables

BJ-10 Ink Cartridge (BC-01)	£18
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Acorn ANSI C v4 Manual	£25.00
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RiscOS 3 First Steps (Dabs)	£14.95

Add £2 Carr to above (£4 for Acorn books)

Terms

EC residents add 17.5% VAT to all prices except books. Carriage free in UK (excluding remote areas) (except books), elsewhere at cost. Orders MUST be accompanied by a phone number. Prices and spec's subject to change without notification. Goods subject to availability. Goods not offered on trial basis. Restocking fee on non-faulty returns. Official orders welcome from educational institutes, chq with order under £30. E&OE.

Where to Find Us

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DEC 9

MPEG – What does it mean?

With MPEG, Yellow, Red and White Books about to hit the Acorn market, Rob Miller explores the jargon

OVER the past few years, the power of computers has increased dramatically, leading to new uses. The idea of multimedia is quite an old one but it's only now that it is being realised as a viable and practical discipline. With the right hardware, it's possible to have fully-interactive *electronic books* that can describe subjects through sound, graphics and moving images.

When a new technology emerges, it's essential to try and create a set of standards from the beginning. Fortunately, the various companies involved in producing the first multimedia systems have done just this and have come up with a number of rules which govern the way in which hardware and software should be produced, as well as linked together.

Moving images play an important part in multimedia and a special group was set up to devise a method by which films could be digitally encoded so that they could be played back on suitably-equipped computer systems. MPEG (Motion Picture Expert Group) compression is now recognised as the definitive method for digital video storage and playback.

MPEG – why the hype?

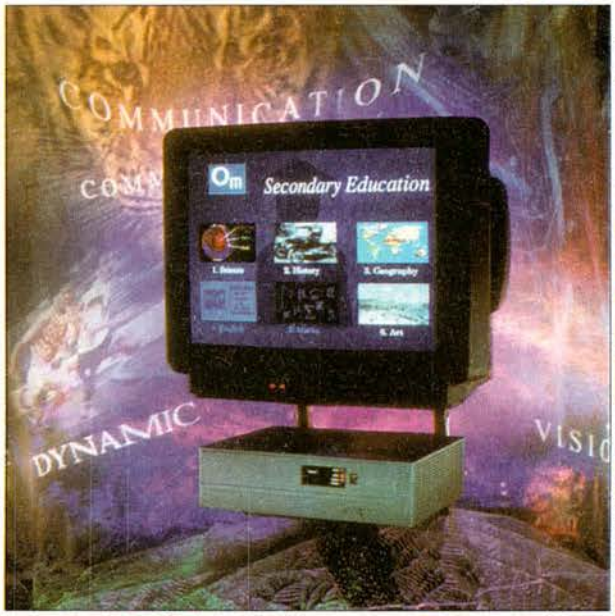
There are two types of MPEG compression, imaginatively called MPEG 1 and MPEG 2. MPEG 1 is the more common format and allows up to 65 minutes of video to be stored on a single 5in compact disc. The quality of the images are particularly good and the makers claim it to be superior to that of a standard VHS player. In addition, a full CD-quality stereo soundtrack can be encoded on the disc at the same time.

MPEG 2 is a new development and as yet, has not been adopted by many hardware manufacturers. It is chiefly designed for situations where higher quality pictures are required, such as broadcast-quality TV transmission. MPEG 2 uses the same data rate as MPEG 1 – approx. 300 k/s – which means that a single compact disc will only hold about 32 minutes of video.

At present, MPEG discs are just a read-only format. Although you can get recordable compact discs, the hardware needed to compress the video and sound information in the first place is prohibitively expensive and compressing MPEG is an art, not a science. In a few years time though, the necessary technology should be cheap enough to include in a domestic unit and could well spell the end for the VHS machines we know (and love) today.

Acorn and MPEG

Earlier this year, Acorn made an announcement that was quite unexpected and was seen as a major commitment to the rapidly evolving ➤



area of multimedia and communication. Online Media was formed to bring affordable interactive multimedia products and services to the huge market emerging from the information superhighway.

The first step by Online Media was to design and build a Set-Top Box (or STB) that could be used to connect the user to the information superhighway. Such a box should be capable of receiving all sorts of data including text, sound and video, and then presenting them in an acceptable way for the operator. Acorn's new Risc PC was selected as the base design and then modified in a number of ways.

As in the past, Acorn/Online Media approached the various third-party hardware manufacturers for their expertise to design the necessary parts for the STB. An MPEG decoder expansion card was produced as a result, allowing the STB to replay any MPEG films or sequences. An offshoot of this was that the MPEG board could also be used in an ordinary Risc PC600.

There are two boards in production for the Risc PC produced by Wild Vision/Computer Concepts. The first will allow you to watch MPEG films on a standard TV-style monitor. Due for later release is an MPEG Multimedia Board which will allow output to the computer's monitor and in different display sizes, therefore allowing you to create and watch multimedia applications incorporating MPEG video on the same screen.

With any new product, the hardware is only half of the equation and it's important to realise that hardware is no use without software. Fortunately, Acorn had the foresight to design its Replay system to be upgraded so that it can work with any new file formats that might appear. By just including a few extra files inside the Replay resource directory, it is possible for it to play MPEG files just like Replay files – which now means that *any* application that can handle Replay files can now use MPEG.

What it also means, however, is that CD-Roms must have two types of file for each film sequence; one in normal Replay format and one in MPEG format. Anglia TV – one of the companies who has joined together with Online Media to develop hardware and software – is now upgrading its range of CD-Roms to take this into account. Other companies who produce CD-Roms for the Acorn market will also be upgrading their discs.

A who's who of CD formats

With the rapidly increasing growth in the multimedia market, the number of different compact disc formats has escalated. What was originally designed for just storing music can now be used to hold any data imaginable, from high quality photographs (PhotoCD) to feature films (VideoCD).

New formats mean new standards and all CD manufacturers use what are known as *Colour Book* specifications to ensure that their discs work with the necessary hardware. There are quite a few different formats and new ones are constantly being added to the list as new uses and requirements for compact discs emerge.

Way back in the mists of time, when Philips and Sony introduced the Compact Disc Digital Audio Standard, it was decided that a strict set of rules should be set down to describe the way in which the data is stored on the disc. This format was known as the *Red Book* and is the foundation on which all other CD standards are based upon.

Because all audio compact discs are manufactured in accordance with the Red Book standard, it means they will play on an audio compact disc player. The fact that any audio CD is interchangeable with another has been an important element both in the acceptance of, and in the growth of the CD music industry.

The Red Book specifies that audio data is stored on the CD in one or more tracks, with each track being used for a song or piece of music. Each track is further subdivided into sectors which are 1/75th of a second in length and contain 2352 bytes of digitally-encoded audio data.

One of the main advantages of compact discs over traditional vinyl records is error correction. If you scratch a record, the information stored on it is irreversibly damaged and there is no real way of getting the original quality back. On a compact disc however, a special error correction code allows *missing* data to be recreated, allowing the disc to play as if nothing was wrong.

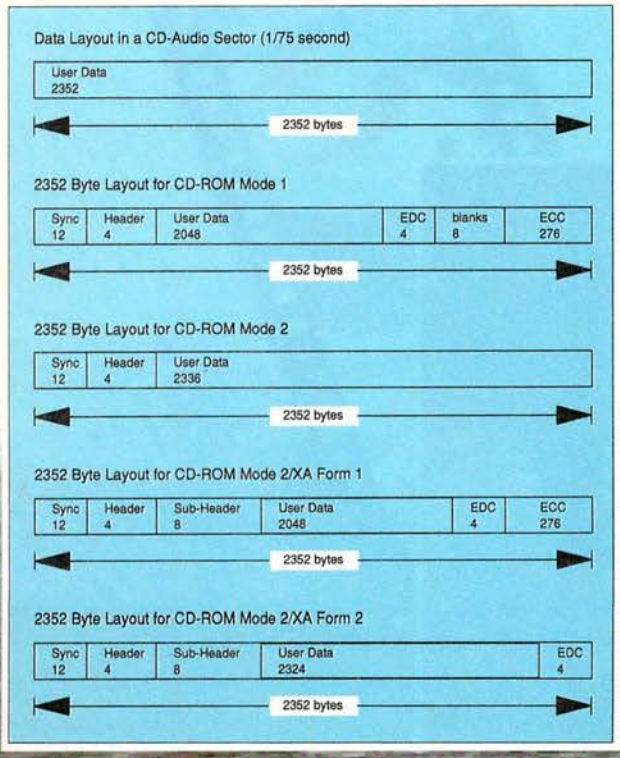
The Red Book specifies two layers of error detection and error correction code (EDC & ECC) for each sector. If a disc gets scratched, dirty, or the laser is unable to read a particular piece of data, the electronics in the CD player can use the EDC and ECC to recreate the lost information.

In addition to the EDC and ECC, a further 98 bytes are included in each sector. These contain information that is used by the CD player to display the current song-playing time. You may have noticed on some audio CDs that some songs will actually count down from, say, five seconds before actually starting. This is useful for DJs who wish to cue up a song and is a typical use for these extra control bytes.

The second standard to emerge was the *Yellow Book* format which defined the rules for CD-Rom. The Yellow Book retains the audio track specification of the Red Book, but adds two new tracks. These are CD-Rom Mode 1 for computer data, and CD-Rom Mode 2 for compressed audio data and video picture data.

As it is based on the Red Book, the Yellow Book format retains the EDC, ECC and control bytes. The difference between Red Book and Yellow Book however, is the way that the 2352 byte data block is redefined for Mode 1 and Mode 2 type information.

With CD-Rom Mode 1, the first 16 bytes are split into 12 bytes of synchronisation data and 4 bytes of header information. This tells the



computer which sector it is currently reading and allows it to keep track of where it is on the disc. The next 2048 bytes contain the User Data – the actual computer data.

The remaining 288 bytes contain an additional layer of EDC and ECC which increases the reliability required for reading information of the disc. A slight blip on an audio CD is annoying but not that important. A mistake in just one bit of computer code can, however, be quite catastrophic which is why the extra error data is included.

CD-Rom Mode 2 tracks have a similar 12 bytes of synchronisation plus a 4 byte header. No extra error correction is used and the remaining 2336 bytes are used entirely for User Data. This means that there is 14 per cent more space available for the compressed audio or video information, although there is a slight increase in the possibility of errors. The EDC and ECC defined in the Red Book are still used though.

Mixed Mode discs have a combination of data (CD-Rom) and audio (CD-DA) on them. The Mixed Mode format defines that the first track is used for CD-Rom data (Yellow Book), and any subsequent tracks used for audio (Red Book).

The third standard to emerge was created jointly by Philips, Sony and Microsoft and is called *CD-Rom/XA*. This is effectively an extension to the Yellow Book and defines a new type of track for storing computer data, compressed audio data and video data.

This new track is known by the rather long-winded name of CD-Rom Mode 2/XA Format, and to make matters more complicated, there are two forms; one for computer data and one for compressed audio data and video data.

The advantage over ordinary Yellow Book (or CD-Rom) discs is that computer data and compressed audio and video data can be interleaved on the same track, thus allowing them to be read at the same time. This means that the host computer can read and play audio data while it is simultaneously reading computer information from the disc. This is not possible on Mixed Mode Yellow Book discs.

There are a few other formats, some of which are relevant to the Acorn market. Recordable compact discs may sound like a rather expensive option but this is what the PhotoCDs from Boots are. The *Orange Book* standard describes two types of disc format; CD-MO (or Compact Disc – Magneto Optical) and CD-WO (or Compact Disc – Write Once). PhotoCD falls into the latter category.

VideoCD – one of the latest formats to appear for compact disc – is described in the *White Book*. To add to the confusion, not every CD-Rom drive has the built-in software to handle all the different types of *books*, and when you buy a feature film on CD *Colour Books* are not usually mentioned.

In a future issue, I'll be taking a look at VideoCD in more depth: What you need to look for when buying the CDs as well as looking at what hardware you'll actually need to access this new and exciting

development. I will also have a list of the latest CD-Rom drives that are compatible, so you can be sure that you're making the right steps on to the information superhighway.

E-Type 2

'Offers everything the original had and a whole lot more!

The original E-Type game was hailed by **The Times** *a superb game and the best looking race game on any computer.* **The Independent** *described it as a stunning experience.* ***E-Type 2*** *offers everything the original had and a whole lot more!*

Now you can challenge your friends to tear along lanes, roads and motorways at speeds faster than ever before. Additionally you can play against the computer with varied skill levels, but watch out for police speed traps and bad weather as you aim to complete the tracks at new record speeds.

For duelling enthusiasts you can use the pursuit track, where you can even use your on-board laser to blast your opponent into a real spin or drop lethal oil spills to delay their progress.

Once you have mastered the tracks there is also a simple to use track editor, to create an endless new array of tracks.

E-Type 2 can also be installed on your hard drive and is fully compatible with RISC PC's.

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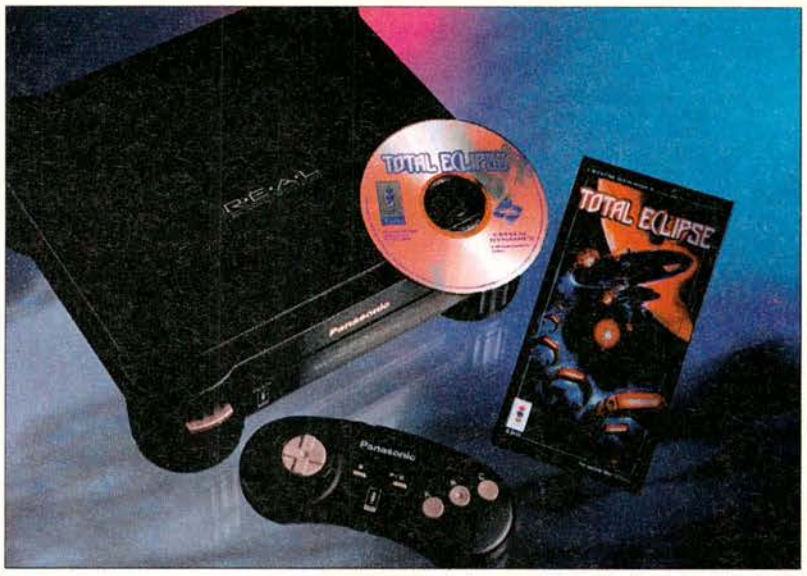

Open the box and take the money

Rob Miller peeks inside a different piece of ARM hardware – the 3DO multiplayer

ONE of the biggest, and most pleasant, surprises of the last few years was the decision to include a British-designed microprocessor in a revolutionary product aimed at a worldwide market. The chip was the ARM60 – the successor to the ARM3 – and the new hardware was the amazing 3DO multiplayer.

After a lot of careful development, ARM Ltd's ARM60 was chosen for its speed and compactness – just the thing for a then state-of-the-art games/multimedia console. For an extremely young company, this was an important decision and proved that ARM Ltd was a force to be recognised, even in the multi national world of consumer electronics.

The philosophy behind the 3DO player was rather similar to a home video recorder. You have a standard machine that complies with a fixed set of rules – VHS – which any manufacturer can go away and produce, safe in the knowledge that cassettes from one will play on any other. As long as manufacturers provide a standard *mechanism*, they are free to include any other add-ons such as stereo sound or SVHS.

Likewise, the 3DO player is a standard *box* that will play games etc. produced for any other 3DO machine. Manufacturers are also free to build extra features into their hardware such as modems or networking capabilities. At present, there are roughly eight different versions of the 3DO system in production or development, from the likes of Panasonic, AT&T, Sanyo and Toshiba.

What got everybody excited is that the 3DO standard includes the ARM60 as the main processor. Therefore, every company who produces a version of the multiplayer must use the ARM chip. This is one of the reasons why news reports concerning ARM Ltd's licensing deals have included names such as Sanyo.

The Panasonic 3DO Multiplayer

Panasonic – a subsidiary company of the Japanese giant Matsushita – was the first to take on the challenge of producing a 3DO machine.

Prototype boxes were on show in the States around mid-1993 with the actual release being in October 1993. The Japanese launch followed soon afterwards and hence, the 3DO became a world standard, albeit a small one.

Grey imports of non-PAL 3DO machines have been available in Britain since the US launch, but it has not been until this September that UK games-players have been able to get their hands on official hardware. The new version of the Multiplayer is specifically designed for the UK market with a PAL video out (rather than NTSC), much in the same way as Sega and Nintendo video game systems

For your £399 inc VAT you get the 3DO Multiplayer itself, plus one hand-set, one demo CD and one copy of the game Total Eclipse. The ➤

Audio discs

The 3DO Multiplayer has stereo sound output and can therefore playback ordinary audio compact discs like any other CD player. When a music CD is placed in the 3DO's drive, it automatically recognises and brings up the audio control screen on the monitor or TV. All the usual features are present such as repeat, random selection and even the ability to program in your own choice or tracks.

One of the best features when playing audio CDs is the special effects option. This allows you to listen to music while the 3DO players generates an accompanying display of swirling patterns. Although, at first, the display can appear quite random, the 3DO does in fact use the different levels in the music to cause changes in the pattern. The result is really quite far out and is just the job for all those old Tangerine Dream CDs.

demo disc introduces the various features of the Multiplayer and includes a tutorial, two mini games, some examples of PhotoCD pictures, plus a short cartoon animation showing off the machine's FMV (see box) capabilities.

The 3DO player is designed to use compact discs and is able to play ordinary audio CDs, as well as PhotoCDs and VideoCDs. The unit is roughly the size of one of the old-style midi record players – approximately 12in x 12in – and houses all the electronics, including the CD drive.

There are several ways of connecting the unit to your TV or monitor. An RF out allows you to feed the signal directly into the back of any TV equipped with an aerial socket, while a composite output can be used for a better picture via a SCART (or similar) socket. Finally, you can use an SVHS output for the optimum picture quality, providing of course your TV can handle it.

Sound is delivered via two phono sockets (left and right) for full stereo. If you can get your telly close to your hi-fi system, this is by far the best way of getting sound out of the 3DO player, and for audio and video CDs, virtually essential. Mono sound is possible, but you just don't get that feeling of actually *being there*.

Apart from the on/off and CD eject buttons on the main console, all control of the Multiplayer is via a single control pad, similar(ish) to those supplied with Sega Mega drives. The controller consists of a single eight-way direction button, plus three fire buttons. Two buttons in the middle of the control allow you to stop, pause or re-start games.

A further two buttons on the back of the controller give extra control to the left and right hand for things such as rolling controls in flight sims and the like. Finally, there is a volume dial on the front of the controller, plus a mini-stereo jack socket alongside it. This allows you to plug in a suitable pair of headphones so you can play games or listen to music without annoying everyone else in the room.

As much as computer manufacturers would like to think otherwise, it is not the hardware that sells a machine but the software. A lot of hoo-ha has been made of the fact that over 550 developers have been signed up to produce software, but one year down the road, the 3DO's compliment of titles is still what might be regarded as on the small side.

Softly, softly

That's not to say that there hasn't been any decent software released. On the contrary. Up until recently, you would have been hard-pushed to find anything to match games such as Total Eclipse, in your average games arcade. Much credit must go to ARM Ltd for their innovative chip design that allows a

PhotoCD

PhotoCD should now be familiar to readers of Acorn Computing, but for those who wile away their time on desert islands, it is a way of storing high-quality photographs on standard 5in compact discs. Pictures can be displayed on any computer with a CD-Rom drive and the necessary software – RISC OS machines – or a special PhotoCD player that connects to your TV.

The 3DO player falls into the latter category and allows you to view photographs from PhotoCDs, rotate them, crop them, or zoom in and out. All operations are extremely quick, thanks mainly to the 3DO's custom hardware that allows instant scaling and rotation of screen images. The 3DO system also uses a full 24-bit colour palette allowing pictures to be viewed in all their glory.

3DO and the Risc PC

Apart from the custom hardware in the 3DO Multiplayer, there is not a great deal of difference between it and the Risc PC. Both use processors from the ARM6 family as their main controller and hence both use ARM code as their native language.

The twin processor design of the Risc PC means that it is a relatively simple task to incorporate another computer in the same box. There is already a design for a 486 board but there is no reason why it shouldn't be any other type of processor such as DSPs (Digital Signal Processors) and the like.

The 3DO was intentionally designed as an open system and there is already a plug-in 3DO card for PCs. The chance of seeing such a board on the Risc PC is perhaps a little less likely as there are far fewer Acorn systems out there than PC compatibles. Remember though that Online Media's set-top box is a Risc PC in disguise, so the prospect isn't that farfetched...

manufacturer to include so much power in a home entertainment product.

If I had to review Total Eclipse in a few words, I would have to say *absolutely stunning*. Imagine a cross between the old arcade game Afterburner, set in a real-time world of mountains and valleys, and the final run to destroy the Death Star in Star Wars. The landscape is generated in real-time with beautifully texture-mapped polygons, all at a blinding speed that's guaranteed to take your breath away.

For a relative old fogey such as myself, the thought of playing such a game back in the days when Pong was considered state of the art was unimaginable. If this is one of the first games written for the 3DO Multiplayer, I can't begin to believe what the state of play will be in six months time.

Should I buy one?

£400 is a lot of money for a video game console but then again the 3DO Multiplayer is so much more. You also get a fully-featured audio CD player, PhotoCD player and VideoCD player – you need to buy the extra MPEG cartridge for another £150 – thrown in *for free*.

Like most consoles on the market, it is the software that will burn the biggest hole in your pocket. Most software titles for the 3DO Multiplayer cost between £40 and £50, but then again, that seems to be the same price as similar games on other machines. Who said anything about a CD pricing conspiracy? Surely not...

At the moment, the nearest competitor to the 3DO system is Atari's Jaguar system but this already appears to be struggling to get a foothold in the market. The support of so many other manufacturers – AT&T, Sanyo and so on – looks like it will guarantee that 3DO does well, which considering that there is an *Acorn-designed* chip at the heart of every box, is quite an achievement.

Full Motion Video

One of the big buzzwords doing the rounds at the moment is FMV (Full Motion Video). Put simply, it is a way of playing back digitally-encoded video from a medium such as compact disc. Because of the enormous amount of data involved, a special compression technique has been devised called MPEG (Motion Picture Expert Group). MPEG compression allows up to 70-odd minutes of SVHS quality video, plus a stereo soundtrack to be held on a single compact disc.

The 3DO Multiplayer has been designed to allow FMV clips to be included in games, as well as standard VideoCDs to be played back on the machine. The standard 3DO Multiplayer is capable of playing FMV clips using a technique called Cinepack, but for full SVHS quality, an additional FMV cartridge (available separately) must be attached to the side of the player.

The inclusion of FMV compatibility is an important part of the 3DO design as it is intended to be the basis of a set-top box system for connection to the Information Highway, much in the same way as Online Media's set-top box. Online Media's set top box has the advantage though of including FMV MPEG compatibility as standard.

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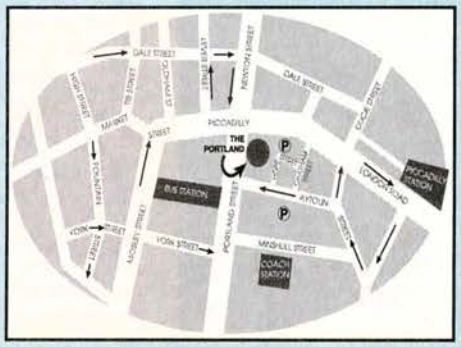

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MultiLink software enables you to move data between 8-bit BBC Micros and Acorn 32-bit RISC OS-based machines by simply dragging between windows using the mouse. The computers must be linked via their serial ports using a standard cable.

MultiLink £24.95, with cable £29.95

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Notes is the handy utility from RGSC that allows you to create reminders on your computer for yourself or others, just like the paper sticky note pads. Fully multi-tasking and RISC OS compliant, NOTES is so easy to use. You can:

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Give your Z88 portable a new lease of life with Z-Link II the new file transfer utility from RGSC! Using Z-Link II you can transfer files to and from your Z88 and any Acorn RISC OS computer with ease. Fully RISC OS compliant, data transfer can be by single file dragging or batch transfer.

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Rebirth or reincarnation?

Stephen Wade tests the latest version of the popular application creation tool – Genesis

GENESIS is perhaps one of the most established packages for the Acorn 32-bit platform, having been first released shortly after RISC OS itself. Since then, it has evolved twice – as Genesis Plus and Genesis II – and versions have been released for the Macintosh and PC. A fourth Acorn implementation, incorporating many new features, has now arrived in the form of *Genesis Professional*.

At its simplest, Genesis is a tool that allows you to create interactive multimedia applications. In practice, it is one of the most versatile pieces of software that money can buy.

A Genesis application consists of a number of *pages*, each of which are composed of several *frames*. These are rectangular areas that may contain some form of *resource* – text, graphics or sound, for example. Each page may be *link*ed in a logical manner to other pages by way of its frames and/or backdrop. This kind of structure is often known as an electronic book.

Down to basics

Imagine *Acorn Computing* could be such an application, supplied on CD instead of paper. Clicking on the cover would transport you to the contents page from where you could choose an article to read. If it was a review of a new product, clicking on the backdrop might follow a link to an advert.

● *Welcome to Genesis Professional*

However, the various restrictions that paper presents would no longer apply. As well as the usual mixture of text, photographs and screen shots, other media such as audio and full-motion video would likely be used.

The games reviews would not only consist of text and a handful of screenshots any more – which, despite the best of intentions, never quite capture the whole atmosphere. Instead a film made during actual play could be given, or even a demonstration version for you to play – rather like bonding the contents of the present MegaDisk to the pages.

Body Building could come to life with Mike Cook personally demonstrating how the various bits and pieces of his latest project bolt together in a *Replay* clip. The classified advertisements would be able to carry photographs of the items on sale, giving you a better idea of what you would be buying.

Initially, this may all sound a little far-fetched. However, it is a perfectly rational illustration of how Genesis could be put to use effectively.

The main attraction of Genesis Professional is that, like its predecessors, all phases of application construction and manipulation can be performed exclusively through a friendly desktop interface. This is something which can only increase the range of users to which the package appeals.

However, like many other large modern packages, Genesis also includes an extensive *script language*. This allows the programming-minded user as much control as desired and an alternative means with which to create applications.

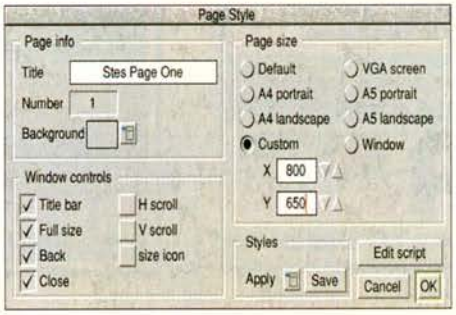
Improvements

The software features a new loading mechanism, presenting significant increases in speed. Full 24-bit true colour support has been added, with custom colours being chosen from the standard RGB, CMYK and HSV cubes.

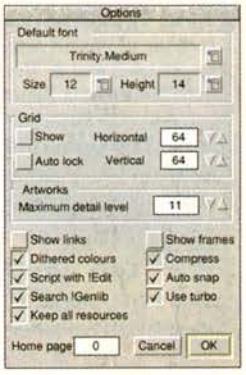
A sensible adjustment sees that temporary files are now placed in the system !Scrap folder, rather than their former !GenLib residence.

This is consistent with Acorn guidelines and allows disk-based users to write-protect the disk containing !GenLib, preventing unintentional alterations to, and loss from,

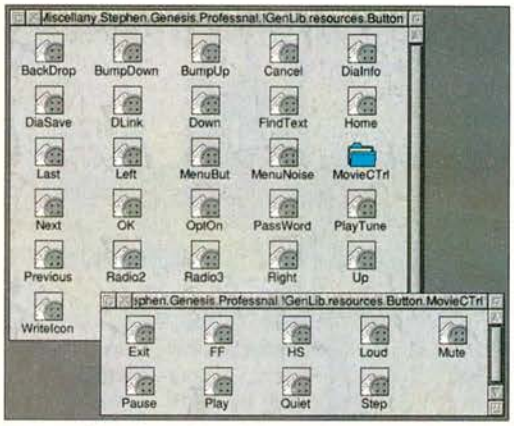
● *The extensive applications suite*



● *Creating a page*



● *The Options dialogue box*



● *A wealth of standard buttons*

it. The range of possible frame types has been widened and almost any resource you could imagine is now catered for. Those now supported are: Application, Artworks, bitmap, comma separated value (CSV), data, directory, Draw, Euclid, icon, movie (Replay), movie control, music (Maestro), number, Sprite, sound sample/WAV, text, word and the general umbrella type of *other*.

Extensions have been made to the excellent script language, many keywords having been introduced to handle new frame types. One of the simplest but most overdue changes has been to the application sprites. These are now visibly individual and at last convey the purpose of each application at a glance.

Perhaps the most significant change has been to the user interface, which includes a much wider range of dialogue boxes than before. These are both comprehensive and well designed, giving very full and flexible control over the appearance and content of your applications.

The overall design of the interface ensures it is as intuitive as possible, and that application creation requires minimum time and effort.

Ample software

Genesis Professional is supplied on four disks, the software suite having grown to consist of nine separate RISC OS applications: Browser, CDEdit, GenFiler, GenLib, Genesis, GenStyles, GI_to_GII, LVEdit and LVShell. A number of other files are supplied, including several examples which were created using Genesis.

Hard disk installation is a simple matter of upgrading your !System directory using the supplied !SysMerge and dragging the rest of the contents of the disks to an appropriate folder – typically called Genesis.

If you have no hard disk, but a high density floppy drive, it is worth copying the software on to a couple of 1.6Mb floppies – this will reduce the amount of disk swapping required and save you time in the long term.

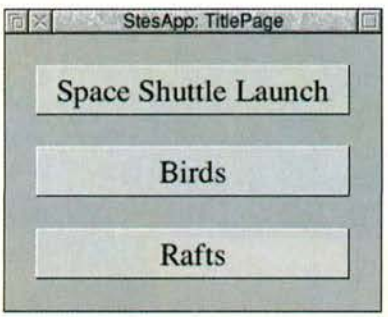
The main creation, editing and viewing tool comes in the form of the Genesis application. At 378k this is over three times the size of the version found in Genesis Plus, indicating the extent to which the package has been modified and enlarged.

Genesis supports a mechanism known as Object Linking and Embedding (OLE). This allows data to be transferred to and from type-specific editors – such as Draw, Edit and Paint for graphics, text and sprites respectively – allowing for easy and efficient editing of actual resources.

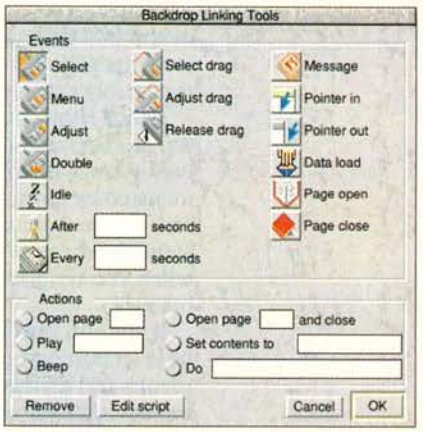
GenLib operates as a central resource area, holding the relocatable modules necessary for others in the application suite to operate. It is also an ideal place to store resources common to several Genesis applications as the need for duplicate copies can be removed. Custom page templates can be placed in *GenStyles*, which includes several examples as standard.

CDEdit, *LVEdit* and *LVShell* enable sound from CDs and audio-visual from LaserVision disks respectively to be incorporated in Genesis applications. Applications created with the original version can be converted to a format compatible with the new one *GI_to_GII*, ensuring upward compatibility.

A filing system front-end for Genesis applications is provided by *GenFiler*. In this, pages are similar to the directories found in the ADFS filing system, as are resources to files. Both can be copied or deleted at will, though the latter may cause a few problems if all incoming links are not subsequently removed.

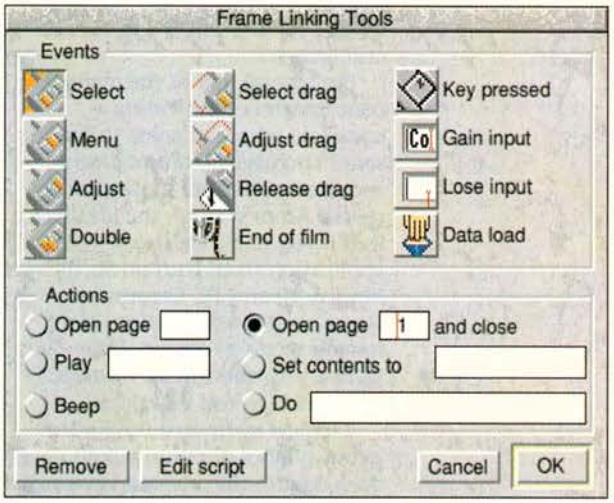


● *A simple video-on-demand server*



● *Define a backdrop link...*

● *...or a frame link*



Existing applications can be viewed, but not edited, using *Browser*. Should you wish to make your Genesis-authored applications available to others, a copy of Browser needs to be included with them. If the software is to be distributed commercially, licensing arrangements need to be agreed with Oak Solutions.

Access

The manual accompanying the software is a tidy A5 size, ring-bound design and weighs in at 120 pages. The general layout is pleasing, with clear illustrations and screen shots

PRODUCT SPOTLIGHT

Product: Genesis Professional v3.00
Price: £120 (inc. P&P, ex. VAT)
Supplier: Oak Solutions, Dial House, 12 Chapel Street, Halton, Leeds LS15 7RN.
Tel: 0532 326992
Requirements: Minimum 2Mb ram

➤

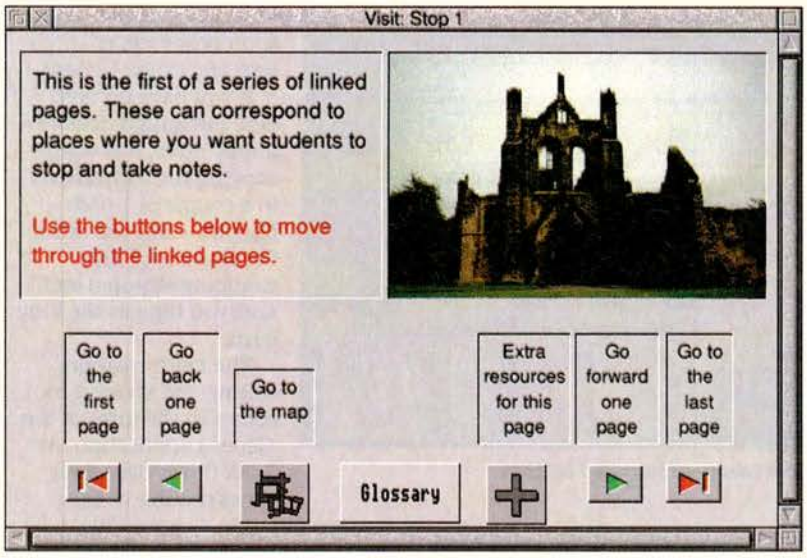
in appropriate areas. A brief contents page is made up for by a reasonably extensive index.

After a short introductory section, the fundamental points of Genesis Professional are introduced, followed by an eight-page tutorial. This may not sound much, but actually proves more than adequate when you try putting theory into practice.

If you run into difficulties, the next section covers most of the menus and dialogue boxes – though the descriptions were sometimes a little brief for my liking. The following few pages then present a quick overview of GenLib, GenFiler and Browser.

The second half of the manual concentrates on providing a complete reference guide to the script language. Acorn platform-specific facilities are marked with a special *Acorn* symbol, the idea being that if you don't use them, your application *should* run under the Macintosh and PC flavours of Genesis without alteration. Not having access to copies of the software for these other formats, I was unable to test this claim.

A logical additional use for the Acorn symbol notation would have been next to the relevant keywords in the indices for the purpose of quick reference. The most disappointing thing about the manual is the total omission of information relating to CDEdit, GI_to_GII, LVEdit and LVShell.



● *The !Visit demonstration application*

Building applications

To generate an application using Genesis, six basic steps need to be taken:

- plan the content and structure in advance
- create the application using the *new* option from the icon-bar menu
- open the required number of pages
- on each page, open and position the correct number of frames
- add borders and resources to frames as necessary
- install links between frames and related pages

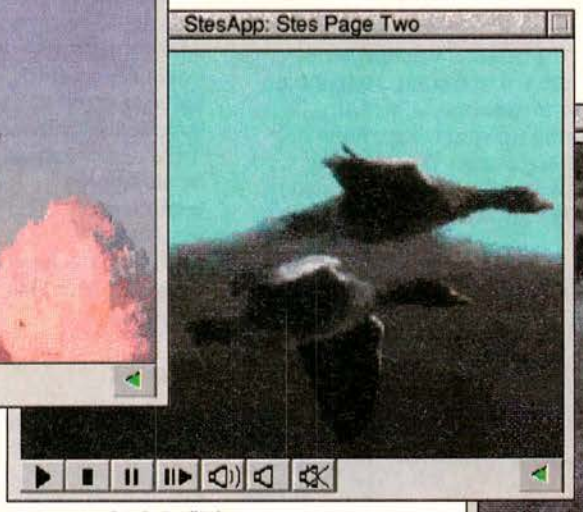
Probably only the first of these is likely to present any real problems – and it is the only one which doesn't involve the use of the Genesis software. It can be tempting to skip this stage and go straight to using the software, but unless your application is *very* simple, such a move is likely to be regretted.

Good applications will generally prove to be those with the simplest and most logical structures. As a rule of thumb, if an applications structure can't be drawn reasonably as a flat-plan, then it is too complex.

Try not to include more links than necessary on each page and provide an option to return to a recent menu page so that users never get *lost* or stuck in loops.

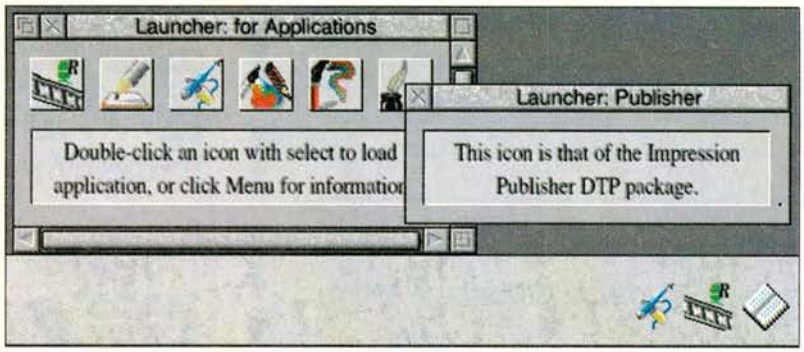
The actual implementation of an application using Genesis Professional is, in contrast, straightforward. To create an application select the *new* option

● *View a space shuttle launch...*



● *...some birds in flight...*

● *...or white-water rafting*



● *Use it to launch RISC OS applications*

from the iconbar menu, change the name in the writable icon to something appropriate, and drag the icon to a Filer window.

New pages can be opened with the *create page* option from the icon bar menu, with a dialogue box providing control over the size and appearance of the window.

Frames are opened by dragging the pointer across part of a window. Opening a menu above a frame and choosing the move option allows fine-grained control over the size and positioning of such. Resources can be installed by dragging them into a frame from a directory viewer.

Backdrop and frame links can be established using the *link to...* option from a menu brought up over the backdrop or a frame respectively. In the resulting dialogue box, select the event upon which the link is to be exercised and choose the type of action required. The number of the target page can be typed directly into a writable icon, or entered automatically by dragging the icon to the window displaying the target page.

Summing up

Genesis Professional is an excellent package and continues from where its popular predecessors left off. The user interface is well designed, offering the most comprehensive and versatile range of options I've experienced.

Object linking is much more versatile and adaptable than before, and the range of media supported allows for almost limitless variety. The applications you can create with it also appear slicker, thanks to the addition of three-dimensional border options, greater control over frame sizing and positioning and initially grey backdrops instead of the former white.

In comparison with the software, the manual is a touch disappointing – it is just too small. A little more body to certain aspects of the material and more reference information in the early sections would have been appreciated. In contrast, the script reference section is apparently flawless.

With this new version, Genesis should remain the foremost multimedia authoring package for the Acorn platform for the foreseeable future at the very least.

Multimedia or not?

Over the past year, the term multimedia has become an increasingly fashionable buzzword. New on the market, there are multimedia upgrade kits for micros and a plethora of dedicated multimedia games consoles. Then there is Acorn's new Online Media division that aims to capture the forthcoming mass on-line multimedia market with their set top boxes.

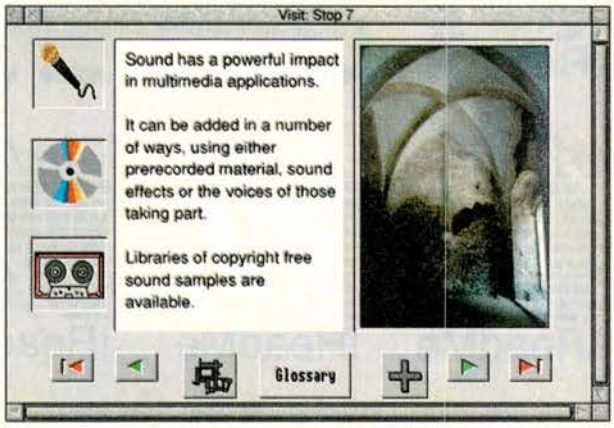
So what exactly is multimedia? According to the Collins dictionary, it is the combined use of media such as television, slides, and so on. Thus, a piece of software that coherently integrates different media can be rightfully labelled multimedia.

However, due to the power of recent marketing, many people have been led to the false opinion that the real difference between a computer and a multimedia computer is the presence of a CD-Rom drive.

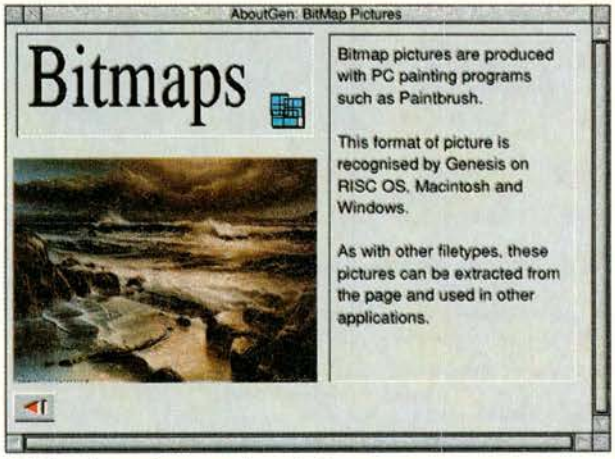
Many multimedia applications require large amounts of data storage, in the order of tens of megabytes, due to the inclusion of large audio and video resources. As CD-Roms have a capacity of 650Mb – equivalent to about 800 floppy disks – they are a convenient means on which to distribute such.

Remember though, not all CD-Rom software is necessarily multimedia – nor is all multimedia software supplied on CD-Rom.

Imagine a simple educational program that introduces children to a range of real world objects. There may be a page which displays the word telephone alongside a picture of it. When clicked on, this may emit an audible ring. This page could be constructed using a small text file, Draw file and Maestro file. An application with 100 such pages would easily fit on a standard 800k floppy.



● *No sounds on this page, though!*



● *Nice picture from another platform*

● *Ace films in Genesis*

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At your service

Stephen Wade takes a bulletin board management package on a test drive

WITH the recent hype about information superhighways, you could be forgiven for thinking the *only* reason to have a modem is to gain access to the Internet. Certainly the Net, with its *Gopher* and *W3* – the quickest way to say *World Wide Web* – servers, contains an incredible amount of information. However, plenty of on-line life can also be found in the domain of bulletin board systems (BBS).

Typically, these are direct-dial services which anyone with a computer, modem and suitable software can access – though their content is often machine-specific. Services provided usually comprise electronic mail (e-mail), conferencing, real-time chat and software downloading, driven by a system of menus.

Archiboard is a RISC OS-compliant BBS management package enabling *you* to provide such on-line services. Supplied on two disks and accompanied by a trio of A5-size manuals, two versions are available: A standard modem-oriented package and one with support for Acorn Universal Networking (AUN) which can also present services over Econet and the Internet.

Archiboard installs on your hard drive as three applications – *!BulSetUp*, *!BulBoard* and *!BulUtils*. The first is used to bring your BBS into existence, the others are concerned with its operation and maintenance.

Probably the most crucial part of setting up a bulletin board is the customisation phase. This involves reconfiguring the standard templates so the services you are offering are presented in the manner you desire.

Archiboard has three kinds of template:

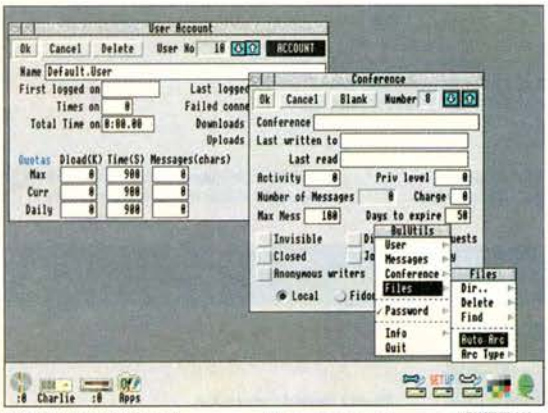
- Text files store messages users are presented with – for example, when logging into the system for the first time.
- Obey files are used for batch processing jobs, ideal for tasks such as making system backups.
- Script files control the actions taken when command is executed from a menu, or when a user logs in/out. These are written in a special script language, which bears a resemblance to C.

This combination makes customisation as trouble-free as possible and provides the flexibility necessary to amend any part of the system at a later date.

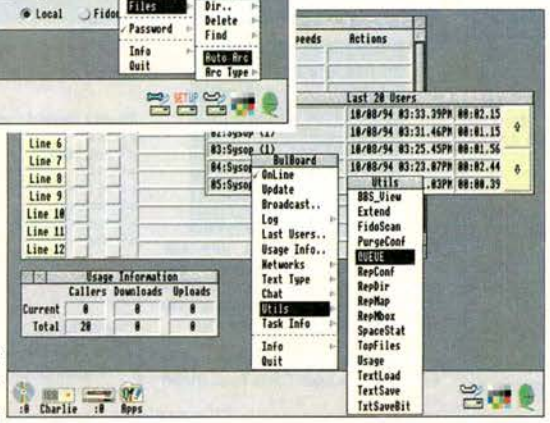
Connecting up a modem and installing *!BulBoard* on the iconbar puts your BBS on line. Anyone with the telephone number of your service and a suitable computer set-up can then dial in and use. Users are managed entirely by the software and up to twelve can be accommodated at any time – quite a reasonable number.

By performing a *local logon*, you can join on a vacant line. This opens a text window with dimensions 80x24 on the desktop – its display is clearest in 16 and 256 colour modes. From this point onwards, the way the system handles you is indistinguishable from a remote user.

The last application, *!BulUtils*, is a collection of privileged management utilities which allows full control over user account permissions, messages, conferences and files. Access to these facilities is password-protected and restricted to the system operator.



● *There are three programs to set up – !BulSetUp, !BulBoard and !BulUtils*



● *Users are managed entirely by the software*

PRODUCT SPOTLIGHT

Product: Archiboard
Price: £50 – with network support £89
Supplier: Supreme Software Systems, 21 Courtenay Close, Chapel Break, Bowthorpe, Norwich NR5 9LB.
Tel: 0603 745077
Requirements: RISC OS 3, minimum 2Mb ram, hard drive and modem (ideally connected to dedicated phone line)

Summing up

Archiboard is a generally good, value-for-money product. From a system operator's viewpoint, it is a flexible package that allows complete customisation and easy management of a BBS. The application appears to have been built with robustness in mind and there are a pleasing range of tools for repairing corrupted files.

When compared with the price of a modem and the expenses involved in accessing other on-line services, the cost of buying this package to operate your own BBS seems very reasonable indeed.

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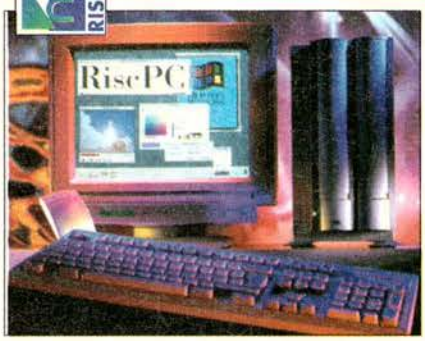
RiscPC 600 Computer Systems



The RiscPC from Acorn offers all the traditional strengths of RISC processing, and a great deal more, at a remarkably affordable price. Based on a 30MHz ARM610 processor, the RiscPC simply leaves the competition standing.

It is the world's most cost-effective 32-bit RISC computer. The graphics on the RiscPC are astounding - 24-bit colour (2Mb VRAM required) at resolutions up to 1600 x 1200 pixels. The memory capacity starts at 2Mb and can be expanded to a massive 256Mb. A special slot for a 2nd processor is provided, allowing you to add an additional ARM processor or any other processor, so allowing easy low cost access to DOS and Windows based applications.

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- 2 expansion slots
- 14" EPA compliant SVGA monitor

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RiscPC 9M HD420

- 8Mb RAM expandable to 256Mb
- 420Mb IDE Hard Disk Drive
- 1Mb VRAM for enhanced graphics
- 4 expansion slots
- 14" EPA compliant SVGA monitor

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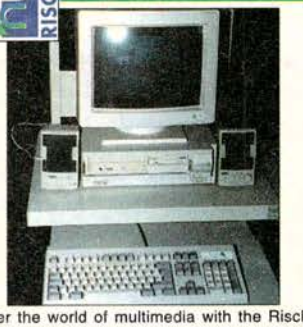
RiscPC 600 CDi Systems



Enter the world of multimedia with the RiscPC CDi system. Gain access to massive amounts of data on CD ROM – study the masses of text, pictures and sound all interacting with each other.

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- Really Useful CDv2

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- Dual speed CD ROM drive
- CD bundle as described below

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RiscPC 9M CDi System

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- 420Mb IDE Hard Disk Drive
- 14" EPA compliant SVGA monitor
- Dual speed CD ROM drive
- CD bundle as described below

£1849

RiscPC 600 Publishing Systems

One of the main uses for the Acorn RiscPC is DTP work. Utilising its immense processing power and high quality graphics capabilities, you can produce professional quality documents for a fraction of the cost.

Specification:
- 5M HD210 or 9M HD420 system
- Impression Publisher DTP software
- 14" EPA compliant SVGA monitor (AKF60)
- Artworks image manipulation software

5M Publishing System

- 5Mb RAM expandable to 256Mb
- 210Mb IDE Hard Disk Drive
- Impression Publisher
- Artworks

£1469

9M Publishing System

- 9Mb RAM expandable to 256Mb
- 420Mb IDE Hard Disk Drive
- Impression Publisher
- Artworks

£1759

Acorn 32-bit RISC Computer Systems

A3010 Action Pack	£319
A3010 2M LC + AKF30	£599
A3020 2M FD + AKF52	£699
A3020 2M HD + AKF52	£839
A4000 2M HD105 + AKF52	£839
A4000 2M HD210 + AKF52	£869
A4 4M HD Notebook	£1599

FREE Shoulder Bag with every A3010 or A3020 computer

Upgrade Options

Memory Upgrades

ARA0220	upgrade to 2Mb RAM - A3010	£49.00
ARA0260	upgrade to 4Mb RAM - A3010	£135.00
ARA0230	upgrade to 4Mb RAM - A3020/A4000	£79.00

Monitor Options

MKA0170/U	upgrade to AKF52 monitor	£40.00
MKA1020/U	upgrade to AKF50 monitor	£120.00

Miscellaneous Options

AAA0600	Learning Curve software pack	£39.00
AAA0610	Home Office software pack	£79.00

Hard Disk Upgrade Options

ADA0730	120Mb IDE hard drive - A3010	£179.00
ADA1070	250Mb IDE hard drive - A3010	£239.00

Above prices apply at time of system purchase

Acorn Pocket Book

The truly personal computer. With built-in word processor, spreadsheet, database, spell checker and scientific calculator, it provides all the basic tools for recording ideas, notes and data.

- Pocket Book 256K Computer £159
- Pocket Book 256K Class Pack £1650

Pocket Book II with 256K £219
Pocket Book II with 512K £269

Pocket Book Accessories

A-Link	£40.00	Plotter Class Pk	£250.00
Parallel Link	£25.00	128K RAM Disc	£49.00
PC Link	£59.00	256K Flash Disc	£59.00
Mac Link	£65.00	512K Flash Disc	£85.00
Schedule	£16.00	OPL Editor	£59.00
Schedule Class Pk	£160.00	Mains Adaptor	£12.00
Plotter	£25.00		

0% Finance

available on all basic RiscPC systems, A4000 systems and A4 Notebooks. Call 0582 745555 for more details.

TO ORDER CALL OUR SALES HOTLINE 0582 745555

CD-ROM and Multimedia

CUMANA

Oscar CD-ROM Drive

Dual speed CD-ROM drive – connects to parallel port on A3010, A3020, A4 and A5000 computers.

- Oscar CD-ROM drive – parallel £229

Bravo CD-ROM Drive

Dual speed CD-ROM drive – connects to parallel port or with SLCD interface.

- Bravo CD-ROM drive – parallel £299
- Bravo CD-ROM drive – A3000 £299
- Bravo CD-ROM drive – A5000 £299

Victor CD-ROM Drive

Dual speed SCSI CD-ROM drive, available as a single drive, or dual and quad speed versions with a SCD autochanger. Interface not included.

- Victor 402A CD-ROM drive £299
- Victor 632A CD-ROM drive £399
- Victor 602 - dual speed 6CD A/C £499
- Victor 604 - quad speed 6CD A/C £969

Indigo CD-ROM Drive

The ideal CD-ROM drive for the RiscPC. A dual speed unit that connects to the IDE interface (300i series). SCSI version also available.

- Indigo 300i CD-ROM drive–IDE £199
- Indigo 300iA CD-ROM drive–IDE £249
- Indigo 401 CD-ROM drive–SCSI £199
- Indigo 631 CD-ROM drive–SCSI £299

Accessories

- 8-bit SCSI Interface – A3000 £119
- 16-bit SCSI Interface – A5000 £119
- SCSI-2 Interface–A5000/RiscPC £199
- SCSI Interface cable £15
- SCSI-2 Interface cable £20

CD-ROM Software

Artworks	£129
Artworks Clip Art CD	£18
British Birds	£150
Castles	£40
Changing Times	£125
Countries of the World	£40
CD – 4 Disc Set	£149
CD Francais	£120
Creepy Crawlies	£90
Daily Telegraph	£125
Dictionary of Living World	£175
Directions 2000 – French	£140
En Marcha – Spanish	£140
Elements – Science series	£130
Frontier 2000CD	£125
Grooves	£90
Hutchinson Encyclopaedia	£49
Illustrated Holy Bible	£23
Illustrated Shakespeare	£23
Image Warehouse	£53
ITN European Atlas	£149
Interactive French Tutor	£149
Interactive Periodic Table	£99
Inventors & inventions	£150
Materials – Science series	£130
Number Games	£79
Pro Artisan v2	£129
Revelation II	£99
Really Useful CD v2	£47
Sherlock Holmes	£23
Sherston Naughty Stories	£79
Space Encyclopaedia	£57
Times & Sunday Times	£195
Times Newspaper Sampler	£40
Tekkie CD	£99
Understanding the Body	£40

Aries Multiscan Monitors

For the ultimate in high definition, flicker-free monitors displaying the sharpest text and graphics look no further than the new Aries range of monitors.

They're safe, easy to use and set up and excellent value for money. All models are low radiation and conform to the Swedish MPR II standard.

The 15" and 17" models are also EPA compliant, ideal for use with RiscPC which supports this type of monitor.

All monitors are supplied with connection cable with 15pin VGA connector. If they are to be used with an older Archimedes, a SVGA VIDC Enhancer and 9pin to 15pin adaptor will be required.

14" A-Scan Pro LR

- 14" non glare tube, 0.20mm dot pitch
- 1024 x 768 resolution @ 60Hz
- 29KHz to 70KHz horizontal frequency
- Microprocessor controls
- Low radiation MPR II standard

£199

15" EnergyPro 6000i

- 15" FST tube 0.20mm dot pitch
- 1280 x 1024 resolution @ 60Hz
- 29KHz to 70KHz horizontal frequency
- Digital controls with LCD display
- Low radiation MPR II standard

£259

17" EnergyPro 7560i

- 15" FST tube 0.20mm dot pitch
- 1280 x 1024 resolution @ 60Hz
- 29KHz to 70KHz horizontal frequency
- Digital controls with LCD display
- Low radiation MPR II standard

£499

Scan256 Scanner

Scan256 gives you up to 256 grey levels at a maximum resolution of 400dpi and is supplied with state-of-the-art software. This makes it the only sensible scanning and image processing solution for Acorn 32-bit machines.

The highly advanced software supplied with the scanner offers you many different image processing options, such as dithering, image enhancement, edge detection, brightness and contrast controls, plus many more.

Features include:

- Multiple copies of an image in memory at once
- Advanced image processing tools
- Convolution digital filtering with over 100 filters
- Adjustable scale & size during scan
- Save images in industry standard formats
- True brightness, contrast and gamma controls
- 105mm scanning width
- Ability to rotate and shear the image

- Scan256 for A300/A400/A5000 £129
- Scan256 for A3000 external £139

Archi A4 Scanner

The 216mm scanning width can cope with both desktop scanning of single sheets, photographs, etc, with its detachable sheet feeder, or used as an A4 wide hand scanner. 64 grey levels are produced from the scanner at resolutions up to 400dpi.

- A4 Scanner for A300/A400 £199
- A4 Scanner for A3000 £229
- Sheet Feeder for A4 Scanner £69

Upgrade to Archi A4 Scanner

For existing users of the Archi MK2 hand scanner we can offer you an upgrade to the A4 Scanner for only £129

Fax/Modem Bundle

Now you can use your Archimedes computer as a fax machine. Prepare a fax, send it using the ArcFax software. Receiving a fax is simple - display on the screen or print out on any RISC OS printer.

- Fax/Modem with ArcFax software £149

25MHz ARM3 Turbo Card

Using the latest surface mount technology on a high quality 4 layer PCB, the ARM3 Turbo Card will increase the speed of your A300, A400 or A3000 computer by up to 6 times.

The upgrade can be fitted by the user in A300 and A400 machines, but for owners of the A3000 we can collect, fit and deliver your computer back for an additional £34.

Owners of A300 and old A440 models will require a MEMC1A upgrade to use the ARM3.

Buy ARM3 Turbo Card and RISC OS 3.1 upgrade for £167

Special Offer Price £99

Hard Disc Drive Upgrades

A3000/A3010 Internal IDE Hard Drives

• ADA0730	120Mb	19ms	£189
• ADA2360	170Mb	11ms	£219
• ADA1070	250Mb	11ms	£249
• ADA2080	340Mb	11ms	£309
• ADA2200	540Mb	10ms	£489

A300/A400 Internal IDE Hard Drives

Complete with interface, drive, cables and mountng brackets

• ADA2010	250Mb	13ms	£179
• ADA0580	365Mb	13ms	£199
• ADA2030	420Mb	12ms	£249
• ADA2210	540Mb	11ms	£299

A5000 Internal IDE Hard Drives

To replace existing hard drive, if required to be additional drive, 2nd drive kit will be needed.

• ADA2050	250Mb	13ms	£149
• ADA0880	340Mb	13ms	£179
• ADA2000	420Mb	12ms	£199
• ADA2220	540Mb	11ms	£259

A300/A400 IDE Hard Cards

• ADA0680	120Mb	19ms	£209
• ADA1090	250Mb	11ms	£259
• ADA2000	340Mb	11ms	£319
• ADA2230	540Mb	10ms	£499

A300/A400 SCSI Hard Drives

Complete with 16-bit interface, drive, cables and mountng brackets

• ADA2300	365Mb	12ms	£340
• ADA2310	540Mb	11ms	£429
• ADA2320	1.0Gb	9ms	£579
• ADA2330	2.0Gb	10ms	£1069

Cables & Accessories

- A5000 2nd Drive Kit £10
- 16-bit IDE Interface - A300/A400 £39
- 8-bit IDE Interface - A3000 £49
- SCSI Interface - A300/A400 £119
- SCSI-2 Interface - A300/A400 £199
- 25w - 50w SCSI Cable £10
- 50w - 50w SCSI Cable £16
- 50w - 50w SCSI-2 Cable £20

Memory Upgrades

- A3000 to 2Mb RAM upgrade £49
- A3000 to 4Mb RAM upgrade £119
- A3000 to 8Mb RAM upgrade** £259
- A3010 to 2Mb RAM upgrade £59
- A3010 to 4Mb RAM upgrade £139
- A3020/A4000 to 4Mb RAM upgrade £89
- A410/1 to 2Mb RAM upgrade £35
- A410/1 to 4Mb RAM upgrade £70
- A420/1 to 4Mb RAM upgrade £105
- A540 additional 4Mb RAM upgrade £249
- A5000 to 4Mb RAM upgrade £79
- A5000 4Mb to 8Mb RAM upgrade £259
- RiscPC additional 2Mb RAM £85
- RiscPC additional 4Mb RAM £139
- RiscPC additional 8Mb RAM £279
- RiscPC additional 16Mb RAM £499
- RiscPC additional 32Mb RAM £999

** Dealer fit only

RISC OS Upgrades

- RISC OS 3.1 Single User upgrade £73
- RISC OS 3.1 Bulk Software upgrade £319
- RISC OS 3.1 Hardware upgrade £21

Graphics Cards

- Colour Card Gold £239
- Chroma 500 Genlock card £419
- Chroma 150 PAL Encoder £169
- Chroma Genlock card £209
- Hawk V9 MKII Digitiser £189
- Eagle M2 Multimedia card £319
- Scanlight Video 256 £199
- Multiscan VIDC Enhancer £15
- SuperVGA VIDC Enhancer £29
- Vision24 254-line Colour Digitiser £99
- Vision24 508-line Colour Digitiser £139
- CC TV Tuner card £89
- CC Movie Magic MPEG card £249

We stock a full range of add-ons and expansion cards from HCCS, Computer Concepts, Wild Vision, Cumana, Aleph One, IFEL, Lingenuity and Acorn. If there is a product you can't see here, it doesn't mean we don't stock it.

Call 01582 745555 for price and availability

ArcScan Flatbed Scanners

The ArcScan range of professional flatbed scanners for the Acorn 32-bit RISC machines and the RiscPC, are incredible value for money. Whatever your budget, there is a model for you. There are 3 models in the range, from a 256 grey scale scanner through to a 24bit high speed scanner.

All models use the new industry standard SCSI-2 interface*, which allows you to scan a full A4 page in just 15 seconds (mono) and in a few minutes (24-bit colour).

The scanners are ideal for anyone in the publishing field, requiring to import scanned images easily into their documents.

The scanners are amazingly fast. Using the industry standard TWAIN drivers and state of the art SCSI-2 interface technology, the ArcScan is probably the most powerful, yet easy to use scanner available.

All scanners are supplied complete with ImageMaster scanning software and Sleuth OCR software. An optional SCSI-2 interface is available to give the best performance. Also available are a 50-sheet auto document feeder and a transparency adaptor.

Special prices available to Schools, Colleges and other Educational establishments.

Aries

Accessories

- SCSI-2 Interface & Cable £166
- 50 sheet Document Feeder £259
- Transparency Adaptor £295

FREE Software

All models come complete with two software packages –

ImageMaster
Image capture and graphics enhancement software.

Sleuth OCR
Software for turning scanned text into an editable format.

(4Mb RAM required to use scanner)

ArcScan 3420

- 256 grey scale scanner
- 300 x 600 dpi optical resolution
- 1200 x 1200 dpi max resolution
- 216 x 356 mm scanning area
- single pass scanning process

AVAILABLE NOW **£499**

ArcScan 3520

- 24-bit colour scanner
- 300 x 600 dpi optical resolution
- 1200 x 1200 dpi max resolution
- 216 x 356 mm scanning area
- single pass scanning process

AVAILABLE SHORTLY **£549**

ArcScan 2412

- 24-bit colour scanner
- 300 x 600 dpi optical resolution
- 2400 x 2400 dpi max resolution
- 216 x 356 mm scanning area
- single pass scanning process

AVAILABLE SHORTLY **£699**

Modems

PACE MODEMS
- Microlin FX Fax Modem £112
- Microlin FX32 Fax Modem £169
- Linnet Quad FX Fax Modem £117
- Ultralink 32+ V32bis Modem £349

DATAFLEX MODEMS
- GEM Fax Modem £75
- SuperGEM Fax Modem £149
- Rapier Plus Fax Modem £379

US ROBOTICS MODEMS
- Sportster 14.4 Fax Modem £119
- Worldport 14.4 Fax Modem £174

- ArcFax 1.10 fax software £35
- Archimedes serial cable – 300/400 £9
- A5000/RiscPC serial cable £7

BBC Products

- AMX Super Art (ROM/Disc) £10
- AMX Stop Press (ROM/Disc) £10
- AMX Page Fonts for Stop Press £5
- AMX Mouse & FREE mouse mat £15
- Quest Paint software (ROM/Disc) £15
- ConQuest ROM £12
- Quest Fonts Disc £5
- Quest Integrex 132 printer driver £5
- Quest Tracerball - BBC B/M128 £20
- Quest Mouse Mat £3
- InterWord ROM £36
- InterSheet ROM £36
- InterChart ROM £25
- Logotron Logo ROM £40
- Mega3 ROM - Word/Sheet/Chart £69
- Numerator ROM £39
- Pendown ROM £32
- SpellMaster ROM £40
- Wapping Editor £29
- Wapping Art Disc £10
- Wapping Font Disc 1 £10
- Wapping Font Disc 2 £10
- View Printer Driver ROM £15
- View 3.0 ROM £45
- ViewSheet ROM £36
- ViewStore ROM £36
- ViewSpell ROM £28
- Master 512 Co-processor £49
- Master 65C 102 Co-processor £39
- 32K ROM/RAM Card - BBC B £29
- 64K ROM/RAM Card - BBC B £39
- 128K ROM/RAM Card - BBC B £59
- 32K Shadow RAM Card - BBC B £29
- 16K Static RAM for ROM/RAM Card £8
- 16K DRAM upgrade for ROM/RAM £7
- Battery backup for ROM/RAM Card £3
- Sideways RAM Utilities Disc £5
- Twin ROM Cartridge for Master 128 £6
- Quad ROM Cartridge for Master 128 £12
- Data Duck £10
- Power Duck £5
- Acorn 1772 DFS Kit - BBC B £47
- Acorn ADFS ROM Upgrade £25
- Watford 1772 DDFS Kit - BBC B £29
- BBC BASIC 2 ROM £15

Monitors

ACORN MONITORS
- AKF30 14" RGB Colour Monitor £179
- AKF40 14" RGB Colour Monitor £179
- AKF52 14" Multiscan Monitor £249
- AKF50 14" Hi Res Multiscan Monitor £299
- AKF60 14" ES SVGA Monitor £319
- AKF85 17" PS SVGA Monitor £969

TAXAN MONITORS
- Taxan EV400LR - 14" SVGA Monitor £208
- Taxan 787LR - 14" SVGA Monitor £209
- Taxan 580LR - 15" SVGA Monitor £339
- Taxan 885LR - 17" SVGA Monitor £719
- Taxan 865LR - 17" SVGA Monitor £599

PANASONIC MONITORS
- Panasync T1537 - 15" SVGA Monitor £359
- Panasync 1732 - 17" SVGA Monitor £589

CONNECTING CABLES
- Arc to AKF30/AKF40 Monitor lead £7
- Arc to VGA Monitor Adaptor £9
- 15-pin - 15-pin VGA Lead £12
- 15-pin VGA Extension Lead £12

Add-On Cards

I/O EXPANSION CARDS
- A3000 User Port/MIDI card (AKA12) £44
- A3000 User/Analogue/IIC card £35
- I/O Podule - Analogue/User/1MHz £79
- Archimedes Analogue/User I/O card £49

ULTIMATE EXPANSION SYSTEM
- Ultimate Expansion Interface £39
- Ultimate Expansion with IDE Interface £99
- Ultimate SCSI uPodule £69
- Ultimate Vision Digitiser uPodule £69
- Ultimate MIDI uPodule £49
- Ultimate Analogue uPodule £29
- Ultimate ScanLight 256 uPodule £229

DISC CONTROLLER CARDS
- ST506 Hard Disc Interface £59
- 16-bit IDE Interface - A300/A400 £39
- 8-bit IDE Interface - A3000/A3010 £49
- 16-bit SCSI Interface £119
- SCSI-2 Interface £189
- External Floppy Disc Interface £10

MISCELLANEOUS ADD-ONS
- 4-way Backplane - A300 series £22
- Fan for Backplane £8
- A3000 Serial Port Upgrade (AKA18) £19
- Arc to BBC Serial Transfer Link £15
- MEMC1A upgrade £29
- Floating Point Accelerator - A5000 £99
- MIDI Expansion Card (AKA16) £65
- Laser Direct Hi-Res 4ppm Printer £799
- ArcLaser A4-1200 Printer £985
- Scanlight 256 - A3000 internal £199

UNIVERSAL 2010 CONCEPT KEYBOARD
- 2010 A3 Concept Keyboard £107
- BBC User Port Cable £12
- Archimedes Serial Port Cable £12

Networking

ACORN ECONET PRODUCTS
- Econet Interface - all models £49
- Ethernet Interface III - A5000 £149
- Ethernet Interface - RiscPC £99

Acorn Access Peer to Peer Networking
- Acorn Access - A3000 £145
- Acorn Access - A3020 £145
- Acorn Access - A5000 £145
- Acorn Access - RiscPC £119

I-CUBED ETHERNET PRODUCTS
- Accord P/P Networking - A3000 £145
- Accord P/P Networking - A3020 £149
- Accord P/P Networking - A5000 £145
- EtherLAN Card - A3000 (BNC) £131
- EtherLAN Card - A3020 (BNC) £143
- EtherLAN Card - A5000 (BNC) £131
- EtherLAN Card - A3000 (B/TP) £131
- EtherLAN Card - A3020 (B/TP) £148
- EtherLAN Card - A5000 (B/TP) £131
- EtherLAN Card - RiscPC (B/TP) £113

ETHERNET HUBS
- 8 port UTP Ethernet Hub £179
- 12 port UTP Ethernet Hub £259
- 16 port UTP Ethernet Hub £329

ETHERNET CABLING

Cable length	*Thin*	*UTP*
3m	£5	£3
5m	£6	£5
10m	£9	£8
15m	£12	£10
20m	£17	£14

NETWORKING SOFTWARE
- AUN/Level 4 Fileserver Rel.3 £359
- TCP/IP Protocol Suite - s/user £99
- TCP/IP Protocol Suite - site licence £399

Archi Spares

- Archimedes keyboard (cased) £99
- A4000 Keyboard (cased) £79
- Replacement keyboard - A3000/A3010 £29
- Keyboard Controller PCB - MK2 Kbd £49
- A300/A400 Power Supply Unit £59
- A3000 Power Supply Unit £35
- A4000 Power Supply Unit £59
- A5000 Power Supply Unit £69
- 3.5" FDD for A3000/A4000 £39
- 3.5" FDD for A3010/A4000/A5000 £39
- VIDC Video Controller (VL86C310) £39
- IOC I/O Controller (VL86C410) £39
- MEMC1A (VL86C110) £25
- ARM2 8MHz CPU (VL86C010) £29
- 256K x 4 120ns ZIP DRAM £6
- Replacement Keyboard Cable £17
- Replacement Mouse Cable (state type) £12
- Replacement Mouse Ball £5
- 1.2v NiCad Battery - A3000/A5000 £4
- AA Batteries - A300/A400 (pair) £2
- Fan Filter £2
- Eject Button - A3010/A3020 FDD £3
- Loudspeaker £2

BBC Spares

BBC B SPARES
- BBC B Power Supply £49
- BBC Keyboard £35
- Keyswitches £1
- Functon Keystrip Holder £3
- Serial/Video ULAs £10
- 6502A CPU £5
- 6512A VIA £5
- 6845 CRTC £10
- 6850 ACIA £8

MASTER 128 SPARES
- Master 128 Keyboard £62
- Master 128 Battery Pack £4
- Master 128 Power Supply £69
- Master ULAs £15
- 1772 Disc Controller £10
- 6818 Real Time Clock £12
- Loudspeaker £3
- 65SC12 CPU £12

Accessories

DUSTCOVERS & CARRY CASES
- A3000 Keyboard Dustcover £5
- A3000 Micro & Monitor Dustcover £9
- A300/A400 Dustcover £9
- A5000 Combined Dustcover £9
- 14" Monitor Dustcover £6
- A3000 Shoulder Bag £10
- A4 Notebook Carry Case £35

MICE & JOYSTICKS
- Mk4 Archimedes Mouse £24
- Acorn Logitech Mouse £29
- Voltmace DeltaCat Joystick £25
- Quest Tracerball £20

MISCELLANEOUS ACCESSORIES
- Battery Pack for A4 Notebook £49
- A3000 Monitor Stand £15
- A3000 External Podule Case £10
- Archimedes Keyboard Extension Lead £5
- Archimedes Mouse Port Splitter £5

PC Cards

Transform your Archimedes so you can run standard PC MS-DOS software and even Windows 3.1. Available as a bare card with either 486SLC25 or 486SLC2-50 (no memory) or with 4Mb RAM fitted. Prices do not include DOS or Windows, which we can supply for an extra £99, at time of purchase only.

- 486 25MHz 0Mb RAM £369
- 486 25MHz 4Mb RAM £529
- 486 50MHz 0Mb RAM £449
- 486 50MHz 4mb RAM £609
- 4Mb SIMM RAM Module £149
- 8Mb SIMM RAM Module £299
- 16Mb SIMM RAM Module £499
- 486SX33 Card for RiscPC £199
- MS DOS 6.2/Windows 3.1 £99

Printers & Accessories

Laser Printers

All Laser printers (excluding Hewlett Packard & Panasonic 4400/4401/5400) include 12 Months On-Site maintenance

• Brother HL630	6ppm	£379
• Brother HL-6V	6ppm	£456
• Canon LBP 4i	4ppm	£469
• Canon LBP-8 IV	8ppm	£920
• Canon LBP-8 IIIR	8ppm	£1559
• Epson EPL-3000	4ppm	£425
• Epson EPL-5200	6ppm	£475
• Epson EPL-5600	6ppm	£656
• Epson EPL-7500 PS	6ppm	£1135
• Fujitsu VM600	6ppm	£499
• HP Laserjet 4L	4ppm	£395
• HP Laserjet 4 ML	4ppm	£735
• HP Laserjet 4P	4ppm	£595
• HP Laserjet 4MP	4ppm	£850
• HP Laserjet 4MV	4ppm	£1989
• HP Laserjet 4V	4ppm	£1389
• HP Laserjet 4+	12ppm	£940
• HP Laserjet 4M+	12ppm	£1260
• HP Laserjet 4Si	16ppm	£2095
• HP Laserjet 4Si MX	16ppm	£2990
• NEC SuperScript 610	6ppm	£273
• OKI OL-400ex	4ppm	£319
• OKI OL-410ex	4ppm	£445
• OKI OL- 850 PS	8ppm	£1199
• Panasonic KX-P4400P	4ppm	£290
• Panasonic KX-P4401P	4ppm	£369
• Panasonic KX-P4410*	5ppm	£325
• Panasonic KX-P4430*	5ppm	£480
• Panasonic KX-P4440*	10ppm	£765
• Panasonic KX-P5400	4ppm	£595
• Star LS-5 TT	5ppm	£528
• Star WinType 4000	4ppm	£296

*2 years on-site warranty

Laser RAM Upgrades

Type	1M	2M	4M	8M
• Canon LBP-4+	£139	–	–	–
• Canon LBP-4i	£109	–	£279	–
• Canon LBP-8 IV	£119	–	£299	–
• EPL-4100/4300	£70	£110	£205	–
• EPL-5200/5800	£58	£115	£215	–
• Fujitsu VM600/VM4	£57	£85	£149	£299
• Fujitsu VM800	£115	–	–	–
• HP III/IIIP/IIID	£75	£115	£135	–
• HP II/IID	£75	£115	£135	–
• HP IIISI	£57	£85	£158	£299
• HP 4/4M/4P/4MP	£85	£85	£149	£299
• HP 4L/4ML	£75	–	–	–
• KX-P4410/4430	£129	£199	–	–
• KX-P4420/4450i	£75	£115	£135	–
• KX-P4400/5400	£89	£139	£229	–
• OKI OL400e	£99	£118	–	–
• Star LP-8	£138	£225	–	–
• Star LS-5	£75	–	–	–

Laser Consumables

Type	Toner	Drum	Dev
• Brother HL630	£20	£99	–
• Canon/Star 4s	£46	–	–
• Canon LBP-8 IV	£70	–	–
• Canon LBP-8 III	£52	–	–
• EPL-4100/4300	£75	£89	–
• EPL-5200	£85	–	–
• EPL-7100/7500/8100	£117	–	–
• Fujitsu VM600	£85	–	–
• Fujitsu VM800	£115	–	–
• Fujitsu VM4	£29	£149	£89
• HP II/III/IIID	£47	–	–
• HP IIP/IIIP	£46	–	–
• HP IIISi/4Si	£85	–	–
• HP 4/4M/4P/4MP	£72	–	–
• HP 4L/4ML	£49	–	–
• NEC 610	£85	–	–
• NEC S80/S62P	£105	–	–
• OKI OL-400/800	£19	£189	–
• OKI OL-400e	£17	£129	–
• KX-P4410/30	£29	£80	£90
• KX-P4440	£32	£108	£115
• KX-P4420	£24	£60	£55
• KX-P4450/50I/51/55	£18	£75	£60
• KX-P4400/5400	£32	£69	–
• Qume Crystalprint	£99	£189	–
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• LaserJet 4 JetDirect Ethernet Card	£339
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• Ozone filter for KX-P4450/4455	£20
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• A5 Paper Feeder for LaserJet 4P	£85
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• Citizen 1200+ Parallel	80col	£90
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• Epson LX400	80col	£89
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• Epson FX870	80col	£222
• Epson FX1170	132col	£280
• Epson DFX5000+	132col	£1095
• Pansonic KX-P1150	80col	£89
• Panasonic KX-P1695	132col	£267
• Star LC15	132col	£177
• Star LC100C	80col	£89
• Star ZA200	80col	£255
• Star ZA250	132col	£315

24pin Matrix Printers

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• Citizen ABC Colour	80col	£126
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• Citizen Swift 200 Colour	80col	£146
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• Citizen Swift 240 Colour	80col	£178
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• Epson LQ100	80col	£98
• Epson LQ150 Colour	80col	£152
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• Epson LQ870	80col	£350
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• Epson LQ3000	132col	£680
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• Panasonic KX-P2023	80col	£109
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• Panasonic KX-P2135	80col	£124
• Star LC24-20 II	80col	£113
• Star LC24-15 II	132col	£232
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• Star LC24-100	80col	£95
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• Canon BJC800	£16	£22
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• Citizen Swift 200/240	£4	£13
• Citizen Swift 24X	£8	£18
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• Epson LX100	£4	–
• Epson LX1050/FX1170	£5	–
• Epson LQ100	£4	–
• Epson LQ150	£4	£12
• Epson LQ570/870	£5	–
• Epson LQ1070/1170	£8	–
• Epson LQ2550	£8	£16
• Epson SQ870/SQ1170	£21	–
• Epson Stylus Colour	£–	£29
• Epson Stylus 300	£12	–
• Epson Stylus 800/1000	£10	–
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• Fujitsu DL3600	£6	£12
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• NEC P82/72/90	£8	£14
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• Panasonic 1824/2824	£8	–
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• Star LC100/200	£5	£11
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• Star LC24-30	£8	£12
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• HP DeskJet 1200C PS	80col	£1266
• HP PaintJet XL300+	132col	£1599
• HP PaintJet XL300 PS	132col	£2568
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Overtures and beginners

Ian Waugh looks at an Acorn music package which has shaken the professional music world

SIBELIUS is a professional music typesetting system designed for music publishers, composers and anyone wishing to produce professional scores.

It's important to realise what we're talking about here. We're *not* considering a sequencer with a few scoring facilities, or even a dedicated scorewriter. Sibelius is an expert system. It's an expert in the art of music processing.

You might expect such a system to be developed for the PC or the Apple Mac, but no, it's right here and available for your own Archimedes.

Music typesetting has a lot of arcane rules developed over the centuries which go far beyond those of simple music notation. They cover things like how long note stems should be, how much space there should be between successive notes, precisely where music symbols should go, how large text should be – this depends on what it's for – and so on.

Sibelius applies all these rules to your score automatically. You put the notes and symbols in, Sibelius lays them out for you.

Built-in radar

The main edit screen shows a section of the score. A small radar window sits at the bottom right of the screen and a white rectangle shows the part of the score which is visible in the main window. To see another part of the score you simply drag the rectangle around the radar.

You can also move the score by clicking on the *paper* and dragging it directly as if you had placed your hand on the manuscript and were sliding it over your desk. If you continue dragging off the edge of the screen in either window, subsequent pages will appear and scroll by.

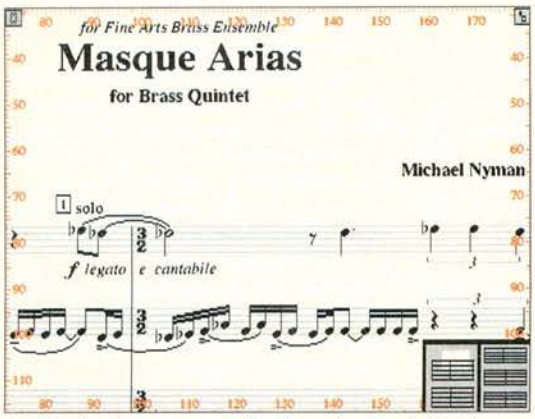
The amazing thing about all this is that the process is instantaneous. Not fast, instant! You see, Sibelius is written in machine code and like every one of its other functions, screen scrolling responds immediately to your command.

As you type notes into the program, it automatically spaces them and splits them into staves and pages. You can make dramatic changes to the music such as adding a new instrument or even selecting a different score size and Sibelius will instantly reformat the score, whatever the size. Yes, it can even do this to Wagner's Ring Cycle – and probably take less than a second.

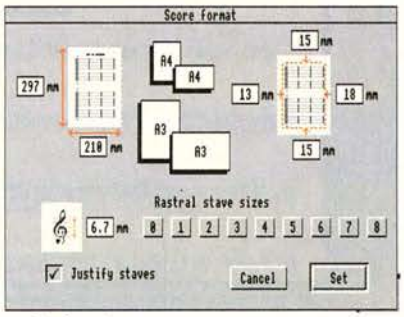
But it's not only fast. When you reformat a score it will intelligently perform functions such as splitting crescendos and phrasing marks across two staves or join them up as necessary, adjust the note spacing if required, adjust the automatic bar numbers at the start of each stave and so on.

As well as the main screen, you can also get an overview of the score. This is like a normal RISC OS desktop window complete with scroll bars. However, even here, Sibelius shines. You can zoom in and out of the overview and the program uses shades of grey to make it legible at almost any resolution.

The drawing of the overview window is fairly nippy but as this is more under Arc control, slower machines will show their age. Give plenty of ram to the fonts to speed things up.



● *A typical score page with the radar control in the bottom right-hand corner*



● *You can chose virtually any page size and layout in the Score format window*

The short score

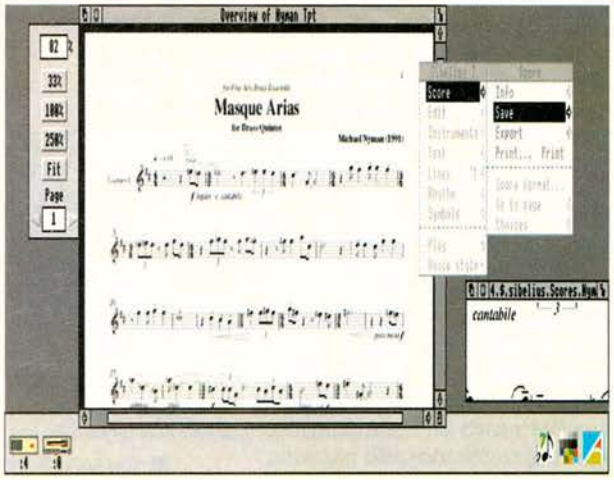
So how do you create a score and how easy is it? First you select some instruments – these are basically correctly-formatted staves for the various orchestral instruments. You can choose from over 100 from menus or create your own. They automatically appear in the correct order for an orchestral score – although you can change this, too.

You enter a note duration using the function keys – an overlay is supplied – and then drag the note to the correct pitch with the mouse. Short notes are automatically beamed correctly, so you can split and adjust them manually, and accidentals and note heads in chords are always in the right place. You can then add accidentals, articulation marks, text, lyrics and other music symbols.

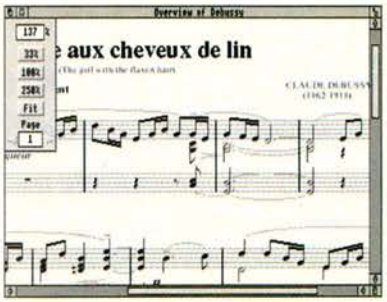
All the time, the score automatically reformats, on the fly, in response to any changes you make. When you come to the end of a line – technically, a *System* – Sibelius creates another one, rather like the way a word processor wraps a word on to a new line when one is full. It does the same thing with pages although you can also make a page end at a particular point to assist with a page turn, for example.

PRODUCT SPOTLIGHT

Product: Sibelius 6 and 7
Price: Sibelius 6 £159. Sibelius 7 £795. Education and amateur users' price £499
Supplier: Sibelius Software, 4 Bailey Mews, Auckland Road, Cambridge CB5 8DR.
Tel: 0223 302765
Requirements: RISC OS 3 preferred



● *Overview mode uses the RISC OS desktop and can show the score in detail at any resolution*



House music

There are a large number of *house styles* which can be used to customise scores for different types of music. Styles can include virtually all aspects of layout and formatting including fonts, note spacings, bar number style and frequency, rehearsal mark formats, instrument order, roman numerals, barline splitting point and so on. This makes it very easy indeed to create scores which have the same stylistic appearance.

Most options have a very sensible default setting which you can override if you wish. You can adjust the formatting manually, pick up notes or text and drag them to new positions. If you enter lyrics, notes are spaced automatically to accommodate them.

There is one thing the program cannot currently do and that is reformat a section of the score which you – or I, in this case – made a pig's ear of. I happened to drag some notes to new horizontal positions and then decided I didn't like it. I had to drag them back manually. Some sort of autospacing function, however, is currently under development.

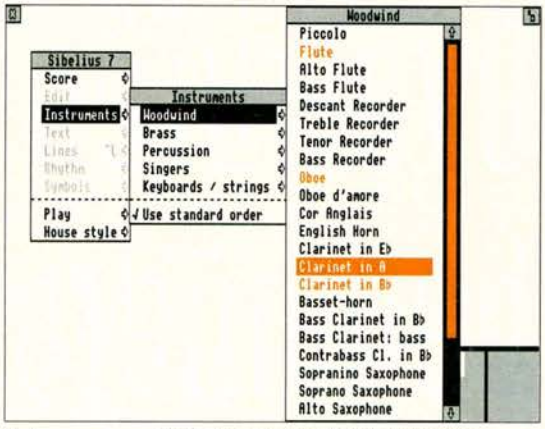
Sibelius supports virtually every kind of symbol and notational nicety you can think of, from renaissance breves to modern avant garde notation – and everything inbetween.

Auto GM

The program supports Midi, too. You can input notes from a Midi keyboard although only in step-time. Real-time input, where the program will read durations, is currently being developed and should be ready by Christmas.

It also has several interesting Midi features. It will play back via Midi and scroll as it does so. It supports General Midi and automatically selects suitable sounds for the staves by instrument. I love it!

It will scan for music instructions such as *mf*, *cres*, *marcato*, hairpin volume changes and so on, and interpret them in the playback. They don't even have to be stock phrases, as the program checks English, French and Italian nouns and adjectives so *Play louder now* would produce the same result as *mf*.



● *There are over 100 instruments, neatly grouped into categories, already predefined and you can create your own*

I'm not aware of any other program with this level of notational control even though, and I'm sure the developers would agree, Sibelius is not, strictly speaking, a sequencer.

Painless extraction

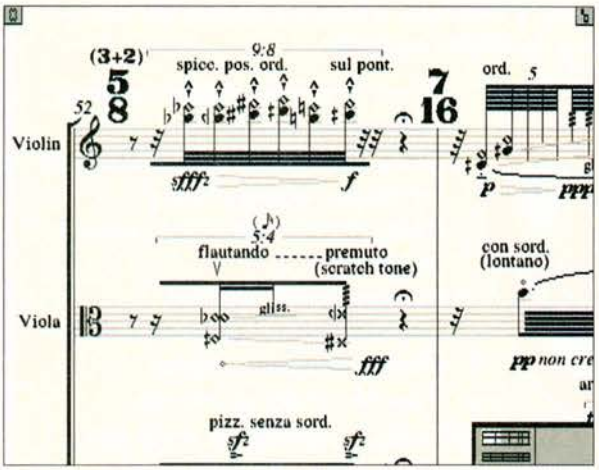
You can extract individual parts as you would expect with any good scoring program. However, Sibelius will automatically transpose parts and bring several bar rests together, as is the common practice in individual part scoring.

It can also export the score as a Draw or Impression file and as an EPS (Encapsulated PostScript) file, which makes it compatible with PCs and Macs. You can create your own music books and include professional scores as illustrations in any other type of book as easily as importing a graphic.

The manual is exemplary. It's written in English – you've very little chance of getting lost in jargon – it's friendly, informative, has an index, is well-illustrated and uses a tutorial approach which will take even the beginner through from first steps to some of the more esoteric aspects of score layout and design.

In case you do run into a problem, the company offers a support line – those with Sibelius 7 have 24-hour support.

For all its wealth of features, the program is surprisingly easy to use, especially when you're just starting.



● *Sibelius can handle virtually any score – and they don't come much more complex than this*

However, you will need to spend some time familiarising yourself with all its features if you really want to make the most of it. You will need to read the manual, or at least skim through it, at least once so you are aware of everything the program can do.

The Finnish

You may wonder who created Sibelius. A high-powered software development team? No, it was written by twin brothers Ben and Jonathan Finn (who claim it a coincidence that Sibelius was also a Finn) over a period of six years. Both have masters degrees in music and started writing the program when they were at university.

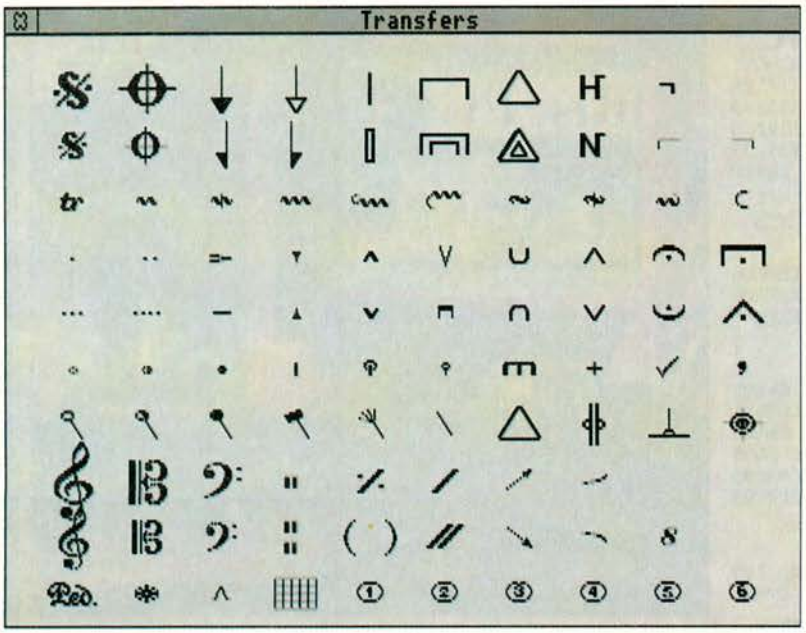
If you're reading this with envy and then with despair having clocked the price, check out Sibelius 6. This works exactly like 7 but it has some limitations, although most will be totally irrelevant to all but the professional.

For example, it lacks some of the more esoteric note heads and music symbols and has fixed options for some functions which are variable in 7. Could you live with a score length of 512 bars, 32 staves per page, a maximum of 16 instruments and support for only A4 paper? I reckon a great many potential users will think that will do very nicely, thank you.

If education can't afford Sibelius 7 then 6 will do for all but the most demanding pieces, especially up to secondary level.

Finally, because Sibelius is written in machine code, it is remarkably compact. You can run it from a floppy disk and it will reputedly run in 1Mb of ram, although I suspect few Arc's now actually have so little memory.

Lastly, you don't need the latest and fastest machine so any school with older Arcs in the corner should dust them off, give them to the music department and watch this program fly.



● *One of the two very comprehensive symbols menus*

There was a demo version (with playback mode) on the November subscription disk. If you don't subscribe you can get a copy from the magazine offices – just send us an SAE and a formatted disk to: *Acorn Computing*, Europa House, Adlington Park, Macclesfield SK10 4NP.

Summing up

Sibelius development continues and the readme file with the latest version shows dozens of new features which have been included at the request of users – who also get a mention, by the way, for their constructive input. Rarely has software been so well supported.

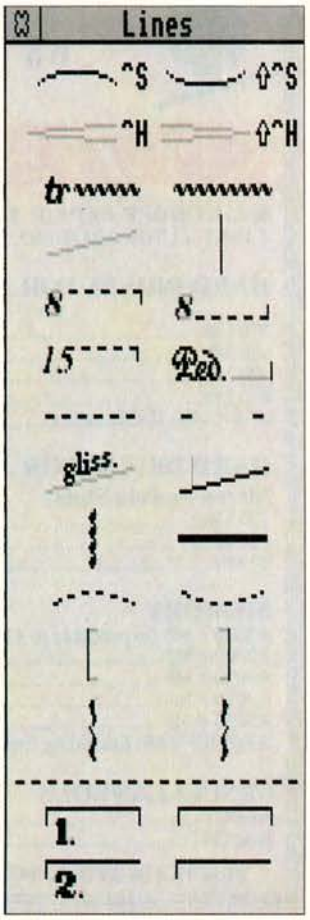
Sibelius has already been snapped up by several major music publishers including Music Sales, Faber Music, Oxford University Press and Chester Music. It is being used by composers John Rutter, Peter Maxwell Davies and Michael Nyman and it has been adopted by the Royal Academy of Music.

We're talking serious business here. These people and establishments could have any system they like but they chose Sibelius, even over pro packages such as Score and Finale on the PC and Mac.

They didn't all happen to have an Archimedes lying around, either, and many bought a complete package – software and computer. Sibelius Software offer very attractive prices for complete systems. In fact, it's true to say that for many users Sibelius is one of those few programs for which it's worth buying a specific machine.

Demonstration disks and information packs are available on request. You *must* get one, if only to see what your Arc is capable of. Show it to your PC and Mac friends and watch their faces drop. There's nothing to touch it on either of these platforms. If you want to produce professional-looking scores and don't want to spend all week doing it, you simply have to buy Sibelius. *There is no other choice.*

● *There are also lots of lines representing various musical functions to choose from*



New Product

Dalriada are soon to release their second DTP utility. Just as TableMate has proven to be the de facto standard for table creation, this new application will be the leading package in its field - diagramming. Whether you want to research your family tree, or organise a company, this is the program you need. Features include:

- Produce flowcharts, process diagrams, trees, organisational charts, annotated diagrams...
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- O.L.E. compatible - so easy to use with leading packages such as Impression
- A wide selection of standard symbols provided

TableMate 2

TableMate 1.1 has been bundled with Impression Style and Publisher from Computer Concepts. TableMate 2 greatly improves on TableMate's features whilst retaining its ease of use. New facilities include:

- Word wrapping inside columns
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- Greater control of linespacing
- Multi-document editor
- Variable width of rulings

Price: £32-50 inc. p&p. Impression Style and Publisher users receive a £15 discount.

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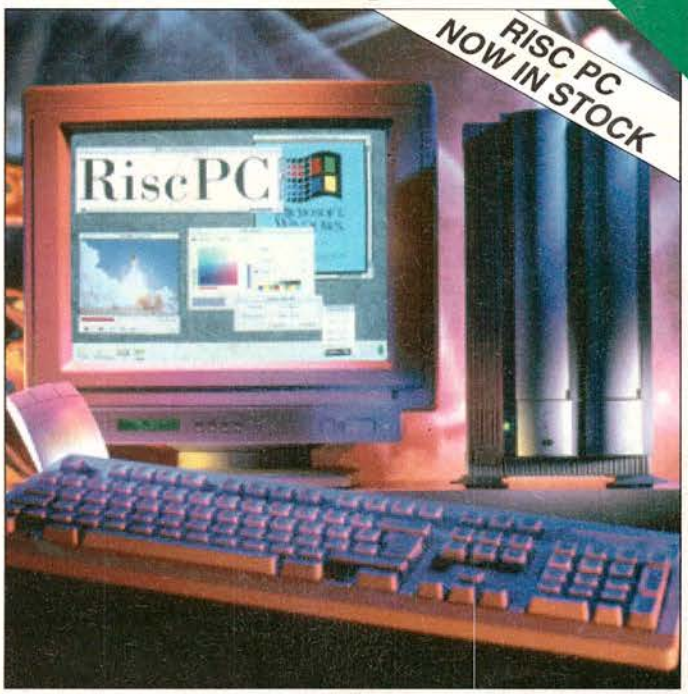


Part Exchange Scheme Available

Constructing the future

Steve Bruntlett investigates Architec

HAVING read the manual thoroughly and viewed the demonstration files systematically I had the feeling that to review this package in the number of words allotted was an impossible task. The program does so much and has so many features that it's difficult to know where to start. The beginning seems like a sensible place so let's start with what Architec actually is.

Architec 3D Concepts Modeller, to give it its full title, is described as being able to produce *a realistic coloured and textured 3D model on the computer screen almost instantly, with high-speed texture mapping and real-time graphics.*

This is born out when you look at the many demonstration files provided on disk, some of which make you wonder at the amount of processing being used to create the images. I've seen this program in development over the last few Acorn and BETT shows and longed to be able to get my hands on it.

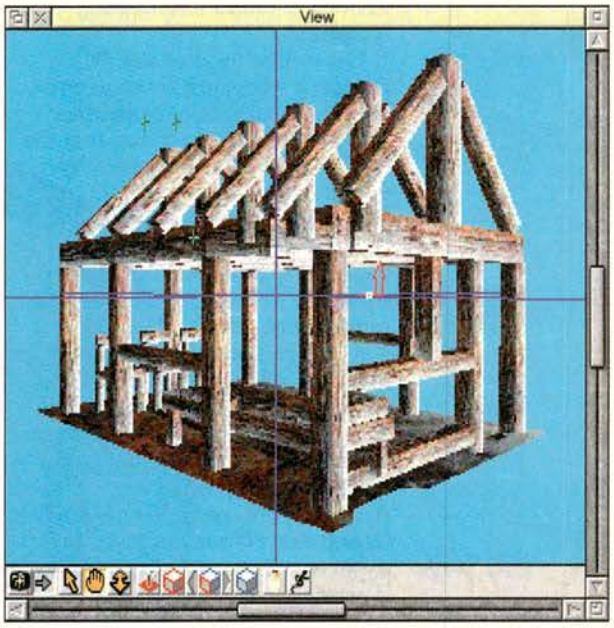
However, Architec is not a solids modelling or ray tracing program. It's actually much more useful because whatever you produce in Architec can be built – you can print it out and glue it together to make all manner of three dimensional objects.

In this respect Architec is the ultimate development of TABS. This is not to say that it can't be used for on-screen solids modelling, because it can, but one of its most useful features is for producing ultimately solid objects.

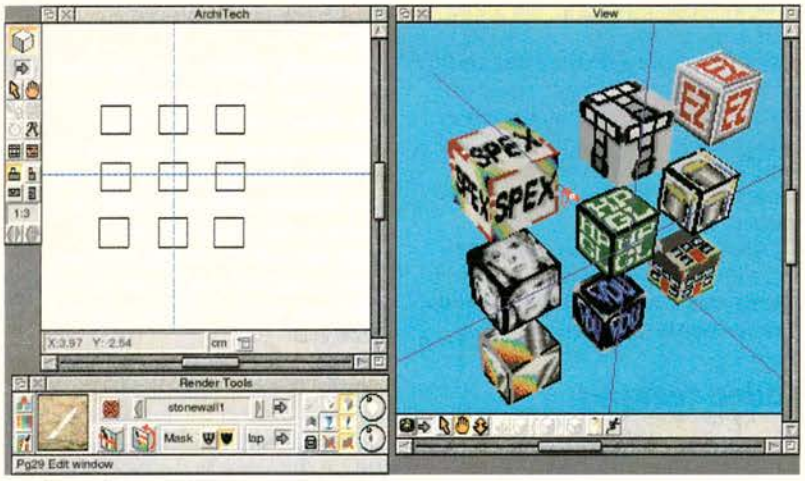
With most 3D modelling packages you could realistically model a sculpture in a courtyard in between office blocks with surface textures, lighting it at different times of the day to see the effect of sunlight and even animate a walk through or fly by, but with Architec you can actually build the sculpture as well.

This makes the package a powerful tool for a wide range of people and especially for art and design departments in schools and colleges, for whom this will quickly establish itself as a *must have* piece of software.

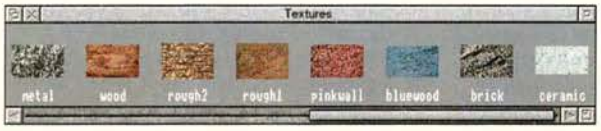
The other main use is as a construction set for SPEX items. If you haven't used SPEX yet go and buy a copy immediately or failing that check out the review in the June '93 issue of *Acorn Computing*.



● *The log cabin is one of the supplied demos*



● *The working environment*



● *Adding textures from the texture strip*

Getting to grips

Architec comes with an A5 manual and seven disks containing the program, textures, models, backgrounds and films showing the wide range of creative uses to which it can be put. The manual is easy to follow and uses tutorials where necessary.

Using the demo files in conjunction with the manual is a good way to see how they were produced and how they can be modified. Rather than just list the features of the program, I am going to produce an object. I'm not into railway modelling, doll's house furniture, stage set or interior design, so I

PRODUCT SPOTLIGHT

Product: Architec
Price: £169
Supplier: ASPEX Software, Heather House, Down Road, Tavistock, Devon PL19 9AG.
Tel: 0822 611060

➤

● *Sculpture in progress*

➤

decided to produce something sculptural.

I used Architec on a Risc PC, though it works just about as well on other Acorn series computers. This is the kind of software that the Risc PC was made for, especially if you're using a 17in monitor. Viewing the demo of the log cabin in full screen mode is a fantastic experience as the building rotates smoothly in line with mouse movements.

As the computer is involved in a lot of *behind the scenes processing* as the manual puts it, it's a good idea to learn to use the function keys for as many options as possible to cut down redrawing wherever necessary. This perhaps only applies to non-Risc PC computers, as I experienced no appreciable slowing down or loss of functionality.

Finding your marbles

I decided to start my sculpture by using a block of marble. I ran the program, clicked on the Architec icon on the iconbar and the Edit, View and Render Tools windows appeared. These can be moved into a more convenient arrangement but the default arrangement worked well enough.

The cube option is the default setting though there are other solids shapes available including cylinder, wedge, cone, funnel, extrude, odd-end, sweep, sphere, profile and side cylinder.

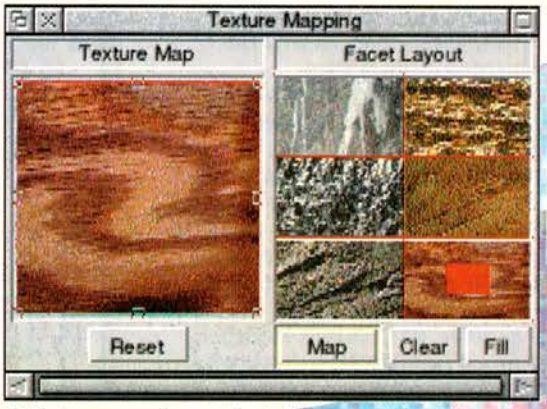
The lines through the centre of the Edit window indicate the point of rotation and the lines through the View window indicate the x, y and z axes. These are supplemented with a front arrow and a *right way up* arrow so you always know which way up an object is and which is its front. You need to know this for a variety of reasons, but suffice it to say that this is a straightforward way of navigating three dimensions.

To draw a cube simply click and drag a box to the required shape and size. When you click the bottom right corner it automatically turns the model through 90 degrees, changing to side elevation, tells you where the font is and waits until you give the cube shape a thickness or depth again by dragging and clicking to complete the shape.

You can see exactly what you're producing in the View window which updates as soon as a shape is completed, though the block in the View window appears as just a grey mass at this stage.

Time to apply a texture. The ones provided comprise a wide range of natural modelling materials such as brick, marble, plastic and wood and some more esoteric modelling materials such as clouds, mist, feathers and bubbles.

I always knew Acorn computers and software were good, but to be able to sculpt with bubbles or clouds is an awesome prospect.



● *Texture mapping – a texture map and facet layout dialogue boxes*

Added features

The Render Tools menu controls the surface appearance of solid objects. The first of the three main options controls the applied colour, using slider bars to control the red, green and blue components. The second option uses the new colour picker system with brightness control.

The third option controls the textures. You can either move through them one at a time or bring up a directory which shows the available textures. Just click on the one you want – granite seems appropriate, though there are skin and stone wall options as well.

Using marble or any other texture is just a matter of dragging a sample texture on to the textures directory. The selected item is applied to the object using the select arrow from the tool bar at the bottom of the View window and clicking on one or more of the cube surfaces.

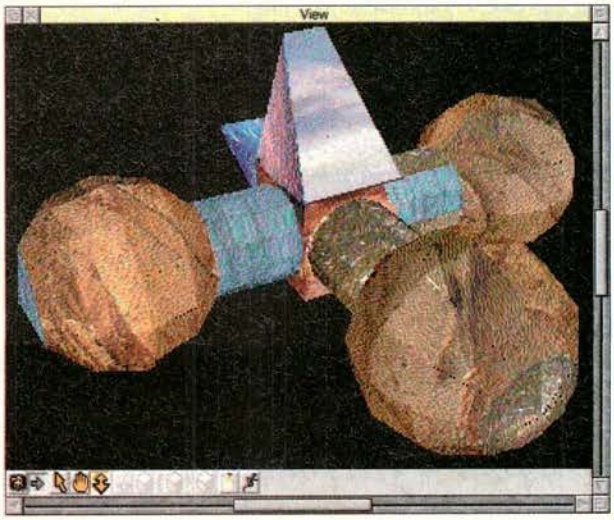
The interactive help line provided at the bottom of the Render Tools box helped here providing the page number of the manual for particular operations.

You can use your own textures as long as they conform to the Architec standard and lots of textures are available from PD libraries if you don't have access to a colour scanner.

Applying textures is controlled by the Texture Mapping dialogue box. This shows the facets of the 3D shape you're working with. Facets are selected or deselected and can have texture applied to them singly or as a group – you can apply a single texture to the whole object which might or might not give the effect you were after, but you make the decision.

You can, of course, apply different textures to each surface but don't forget to deselect the facets you've just completed otherwise they'll all end up the same as the new texture. To select the other facets of the cube click on the hand icon on the View window tool bar and click and spin the cube through 180 degrees or alternatively use the *Cycle to next facet* option on the View Window tool bar.

● *Babylon 5 in construction*



The spice of life

Cubes are quite nice but a bit of variety is called for, so I tried a cylinder. This is produced by the same principle – draw a box add its thickness to give a cylinder – not a smooth cylinder, but one with 12 facets. That's not a very accurate cylinder you might think, but remember what we design we can print, cut out and assemble. This is a useful program.

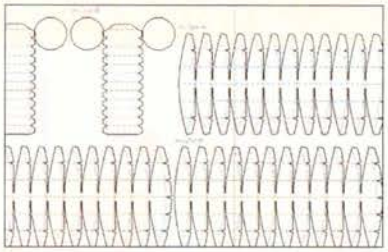
You can have more facets to make the cylinder more cylindrical but think of all those tabs to cut out and stick together. If you want a separate cylinder remember to move it far enough away from the cube otherwise if you overlap the two shapes they become, well, overlapped.

This is fascinating. I can attach one object to another or make one appear to grow out of another, much like the work of computer graphic artist William Latham.

I didn't actually want a wooden cylinder, but as I hadn't selected a new texture the program used the one I'd last used. No matter, I could simply select all the facets of the new shape and apply a new texture. Brick seemed a reasonable choice – a bit sturdier for building than bubbles.

The facet layout is different from that of the cube, this time 12 vertical strips with the same control method but with the top treated separately. To change the colour of the inside of the cylinder or any other shape just click on the *See-both-sides* icon. You can see inside other shapes if you have holes in them – but more of this later.

The sculpture didn't get very far, and seemed to turn into a spaceship unaccountably after watching Babylon 5. It's not as good as the designs on the programme but with attention to detail and some



● *Part of the net for the sculpture in progress*

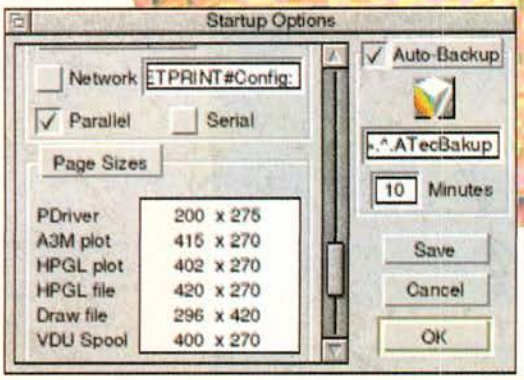
tweaking of working procedures you should be able to produce something very professional looking.

When you wrap a texture round a whole object some facets can look very blocky, but the textural detail of a solid shape can be improved by mapping textures on to individual facets.

This gives a much more accurate representation of texture, so the object looks more realistic – or as realistic as part of a spaceship can look made if it's made out of clouds! In full screen mode, under mouse control, objects take on a life of their own, moving in and around the screen very smoothly.

The model at this stage comprised nine solid shapes. I thought it was time to see how the net looked – remember, one of the points of the exercise is to print out the model and assemble it. Bringing up the Nets Window shows the shapes laid out complete with tabs.

The nets for individual objects can be sorted out neatly and also arranged so that they fit on individual sheets of paper if at all possible so that you don't have to join them more than necessary. The individual object nets are labelled and you can also add instructions and illustrations to help the assembler do a good job. This and other aspects of Architec show how well thought out the whole program has been in its development.



● *The start-up options dialogue box*

It's all relative

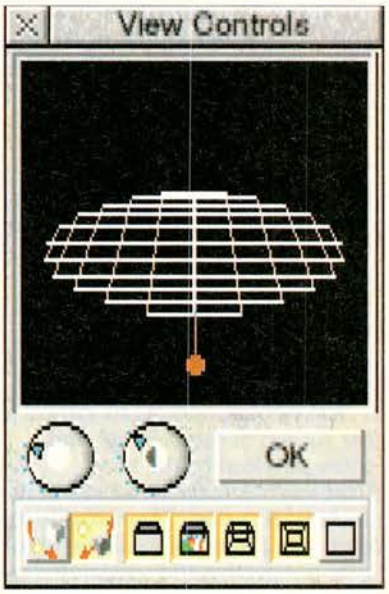
It is important to know how objects relate to each other. Using the front and side elevation options on the Edit Window, objects are easily moved, scaled and so on, until they look right. The View Window updates as you change the shapes, so you can see exactly what effect the movement of objects is having on the overall result.

Clicking on a shape in the Edit Window highlights the object in the View window so that you can work directly on its facets. The other tools available in the Edit Window include a pointer for making selections, a hand for moving the drawing around on screen, copy and delete shape options, a set pivot point option, open walkpath window – used for walk through animation sequences – grid and gridlock on/off, front, side and two plan elevation selectors.

The Edit Window menu allows you to save a file or selection in Architec format or as a Spex file, Draw file or as a working drawing. There is also an auto-backup facility which is very useful as it's very difficult to keep track of time when using this most absorbing program.

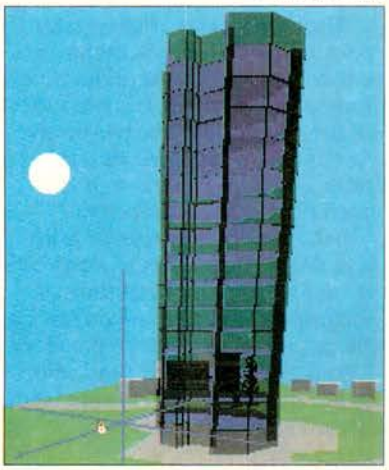
The Select menu allows you to select all, copy, clear, delete, name, group, ungroup and snap to object. The grouping of objects makes complex work much easier to handle. The Transform menu allows you to rotate, X, Y or Z scale or magnify objects. The Edit Window menu allows you to produce a new model, rotate in X, Y and Z directions through a number of degrees in defined steps. The Scale/Grid options allow you to set units, change the ratio and the grid divisions.

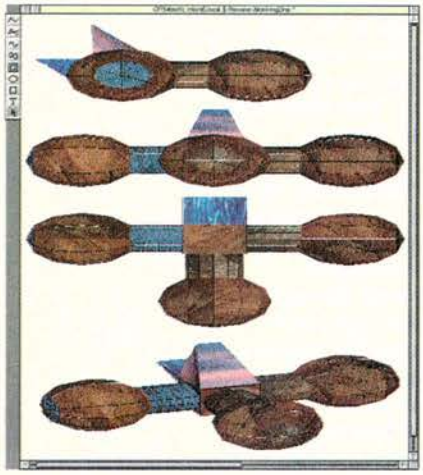
The Zoom option and the Options menu gives control of the zoom factor, cross-hairs, dimensions, help-line and auto-scroll. These methods of control are backed up by the function keys. There is an extensive range of start up options ➤



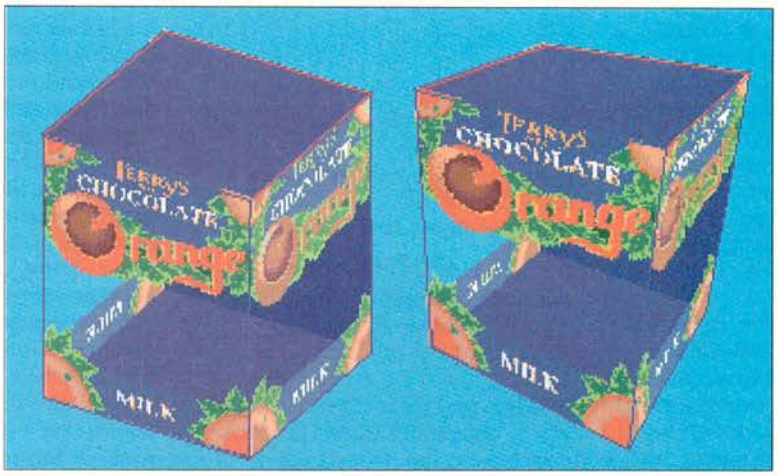
● *View control ...*

● *... in action*





● *Construction saved as a working drawing*



● *Comparison of orthographic and perspective views*

available from the Architec iconbar menu which also controls the Edit, View, Nets and Render Tools Windows. The options cater for preferred settings for the working environment and include the Auto-Backup feature. This is a well-controlled program.

The controls for the View Window allow you to change the focal distance if you are viewing in perspective, to change from front or side to plan view, to change the tumble step in all axes, to show the edit position, pointer or box, all of which makes life easier when editing, but which get in the way sometimes when viewing.

The viewing options are critical to the success of this package, and those provided by the View Controls box make visualisation in Architec first class. They provide the user with a light source on an Elite-type perspective grid and controls to increase or decrease the brightness or contrast of the light source which can be constant or set to move with the model as it rotates.

The model can be shown with coloured or textured facets and in either orthographic or perspective projection. Compare the two views of the orange box. The perspective version looks very realistic but the orthographic one looks as if it hasn't been drawn properly.

Note also the transparent front and side sections. This is achieved by masking out black sections of applied textures so that you can see through from one side to the other. This is also used in the illustration of the shop window. I'm sure you'll agree that it works very effectively.

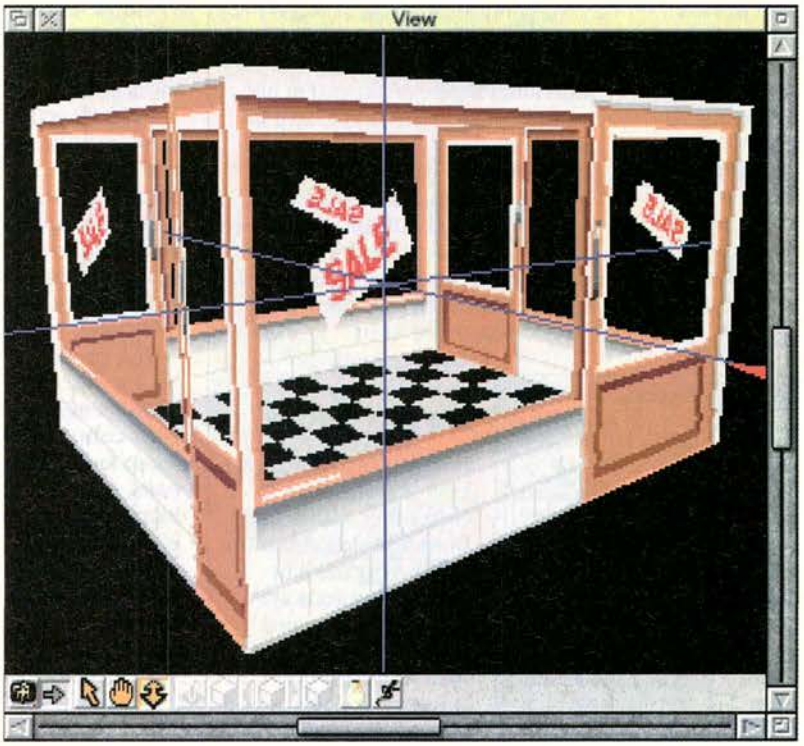
Summing up

This is an extremely useful and innovative package which gives a range of modelling tools to anyone working in three dimensions from interior designers to railway enthusiasts, from graphic designers to model makers.

While I was spellchecking this review I thought I'd just check the Save Working Drawing option from the Architec iconbar menu to see what it did that was different to the rest of the save options. It produces absolutely stunning side and front elevations, plan and perspective views of the three dimensional construction perfectly rendered with selected textures. This kind of working drawing is approaching commercial illustration standards.

The elevations can be treated as normal draw file objects. The whole object can be taken apart and reassembled. You can even see the facets at the back of the object. Amazing! Just right for exploded diagrams in Technology KS3.

This package just gets better and better. Well done Aspex.



● *The masking effect in operation*

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On Vector Graphics Part 1

Steve Turnbull begins a new series showing how you can produce fast vector graphics

THIS is the first of a series which covers the principles and *techniques* in producing solid 3D vector graphics that you see in games like Elite, Stunt Racer and StarFighter. This isn't one of those that gives you some vague theory and then says "the rest is obvious", what we're going to be doing here is real application.

I will be assuming you have a reasonable grasp of ARM code although even if you don't you will be able to see how it's done and learn as you go along. In this first article we have to lay some fundamentals about the screen and how to colour pixels. We'll be working with 256 colours throughout because it's easier, if you're desperate to use less or more you'll have to work it out for yourself.

So let's get started:

We begin our journey with the screen. This is where the display is going to be so we must find out things about it, it's size, location in memory and so on. One of the best features of Acorn machines is they have a wide variety of screen modes and can use many different monitor types easily.

For the programmer this is a problem. We have to choose a screen mode that will work properly on the monitor the user has. The initial step, then, is find out what monitor is being used and select the mode for it.

In RISC OS 3 there is a SWI command you can use to read the monitor type:

```
SYS "OS_ReadSysInfo",1 TO curmode,mon
itor,sync
```

This returns the base address of the current screen mode, the monitor type and monitor synchronisation signal type. We're not interested in the last item, the first could be useful for re-setting the mode at the end, but that's not really necessary.

The value of *monitor* is the important one:

0	50Hz TV standard colour or monochrome monitor
1	Multiscan monitor
2	Hi-resolution 64Hz monochrome
3	VGA-type monitor
4	Super-VGA-type monitor
5	LCD (liquid crystal display)

These are from the RISC OS 3 PRMs. I also discovered that my Risc PC returns a value of 7 so I've included that in the program. The monitor types we won't be supporting are 2 (we want colour not mono), 5 and currently 6 because I don't know what that is.

Has anyone noticed the deliberate mistake yet? What about RISC OS 2 which doesn't support this call? We use the X version of the call and read the flags that get returned, if the call was not recognised it as RISC OS 2 select monitor type 0. This may upset people with graphics enhancers but we're not writing a commercial game.

```
SYS "XOS_ReadSysInfo",1 TO curmode,
monitor,sync ; F%
IF (F%AND1)=1 THEN monitor=0
```

I haven't tried this but it should work.

Now we know the monitor type, we can choose the mode for the TV quality monitor. Choose Mode 13 but for higher resolutions load the official Acorn game modes module and select Mode 49.

We'll be using screen switching which means we need two banks of full screen memory. Mode 13 uses 80k which gives us the requirement of 160k, while Mode 49 needs 300k for both banks.

We must ensure we've got enough screen memory, so use the SWI call OS_ReadDynamicArea to find out how much is currently allocated and OS_ChangeDynamicArea to adjust it if needed. The screen is dynamic area 2:

```
SYS "OS_ReadDynamicArea",screen_area
TO screen_start,screen_memory
IF screen_memory<memory_req THEN
SYS "OS_ChangeDynamicArea",screen_ar
```

display

```
ea,memory_req-screen_memory
ENDIF
```

There are no checks here to see if there's enough memory, but checks could be made and the screen mode altered.

From here we can read the number of pixel lines down the screen and the number of pixels (same as bytes in 256 colour modes) across the screen in each line. With this information we can set up two tables of addresses which point to the start of each row of the screen – this will be used when plotting directly to the screen.

Program 01 encapsulates this initialisation stage and when run will display what screen mode has been selected on your machine, along with other information gathered from the operating system.

Screen banks

Program 02 was put together to illustrate the reason why we use screen bank switching. When run it puts a circle on the screen. Every vertical sync or so it clears the screen and redraws the circle and you can use the cursor keys to move the circle around.

If you move the circle towards the top of the screen you'll find that it disappears before it gets to the top. This is because it's trying to redraw on the screen that is being displayed – it doesn't get round to drawing the circle until after the display scanning line has passed it.

Although we're working through the operating system here, which is inherently slow, if you imagine we were trying to redraw a screen full of spaceships, that would take a long time too, so the problem would still exist.

Program 03 introduces bank switching. The test routine is annotated but there are a couple of points worthy of note. In case you've never seen it before, a command like this:

```
SYS 6,114,0
```

is a call to the OS_Byte SWI and is equivalent to *FX114,0. The main screen bank is cleared automatically but the other isn't. It's good practice to clear them both before you start.

Later we'll be implementing a fast screen-clear routine – although *if you know* that your program will *always* plot *every* pixel on the screen, you won't need to clear the screen.

Within the main loop you can see the *bank=3-bank* command. The screen banks are numbered *1* and *2* and, as long as bank is initialised to 1 or 2, this command swaps between them:

```
3  1 = 2
3  2 = 1
```

Easy.

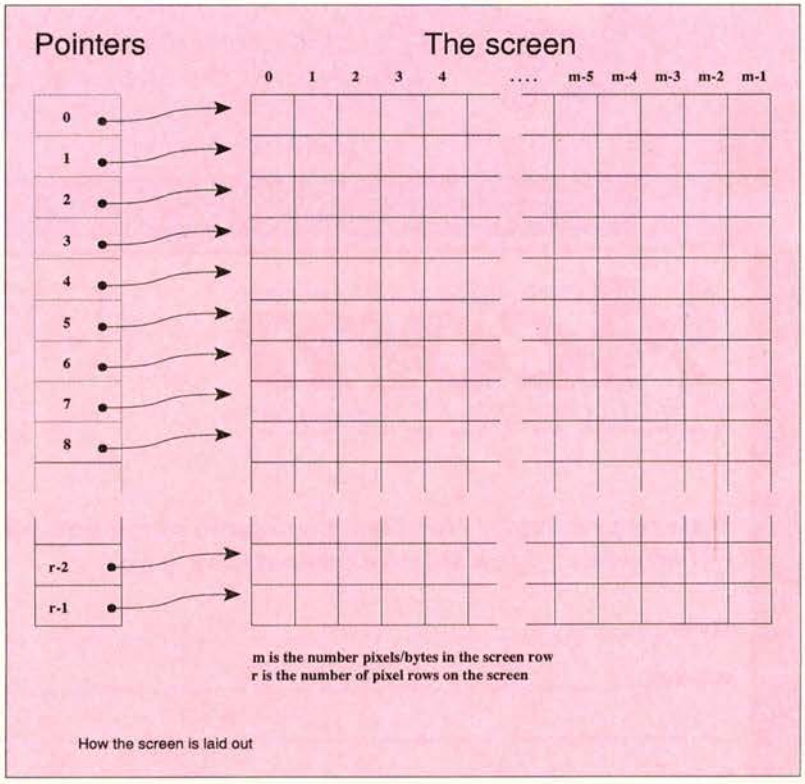
SYS 6,113,bank sets the bank that is to be displayed while *SYS 6,112,bank* sets the bank that will receive any VDU or PLOT commands. Again, if your program will *never* use operating system commands on the game screen, you won't need to use SYS6,112 – you'll only need to set the display bank.

Moving the circle around with Program 03, you'll see that it doesn't suffer from early disappearance.

● *That's it for this time. In the next article we'll implement the core screen plotting routine as efficiently as we can.*

Acknowledgement

Although there are many good books on 3D graphics, the one that has been most useful in this series is, embarrassingly, *Real Time 3D Graphics for the Atari ST* by Andrew Tyler and published by Sigma Press, ISBN 1-85058-217-3. The reason this book has been so useful is that, although the code is for the 68000 processor, it has the *this is how you do it* approach that most books don't.



How the screen is laid out

NEXT MONTH

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The short list

Stephen Wade looks at two programs aimed to make your life a little easier

Ultilabel: King of label creators

ONCE in a while, a utility that transforms a difficult and tedious job into child's play appears. Ultilabel – advertised as the ultimate labelling program for the Acorn range of computers – is one such piece of software.

All you have to supply is a definition of the label stationery you are using and the data you want to be printed on the labels. Stationery layouts are expressed in terms of their page and border sizes, the number of labels found across each axis, their size and spacing. Such definitions can be saved, making them available for subsequent re-use – several, covering *Avery* stationery, are provided as standard.

Label data is imported by dragging Draw and/or Comma Separated Value (CSV) format files to the Ultilabel window. Draw file contents are scaled to fit the labels comfortably from a central location. Precise control over the positioning and appearance can be achieved by making the dimensions of the picture equal to those of your labels.

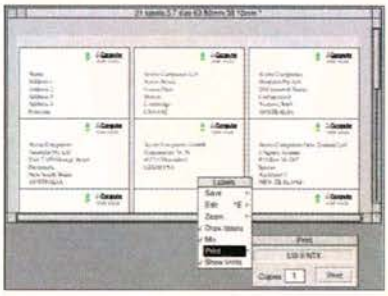
CSV files act as a source of text, each line of which appears on a different label. Most modern databases are able to output data of this format, so this proves as a convenient way to print mailing lists. A dialogue box provides positioning and style management – all aspects other than colour – of the text.

The combined use of graphics and CSV format text on each label can be achieved using the *mix* option from the menu, generating quite impressive results. Printing a finished set of labels is a straightforward matter and the option of multiple copies is provided.

Ultilabel is a very powerful, simple-to-use utility that no-one regularly producing large quantities of labels can afford to be without.

PRODUCT SPOTLIGHT

Price: £58.69 (inc. VAT and postage)
Supplier: Le Computer, Main Road, Willows Green, Chelmsford, Essex CM3 1QB.
Tel: 0245 362225
Requirements: RISC OS 3.1 or better.



● *Set up and ready to print*

Softcrete: Foiling the pirates

SOFTWARE piracy is a widespread problem in the computer community, despite being illegal under copyright law. In the era of the BBC Micro and floppy disks, nearly every software company employed ingenious protection methods, preventing their products from being copied and re-distributed.

Following the move to the 32-bit Acorn range and the widespread introduction of hard disks, this practice became less desirable – users like to install software on a hard drive and run it from there. Alternative approaches were tried, such as copy-protected key disks, colour-codes entered from grids found in manuals and hardware keys. However, none of these has proven ideal and most current software is not copy-protected.

Softcrete is a simple protection utility that allows the *end-user* to restrict the number of machines upon which a given RISC OS application will operate. It works by encrypting the *!RunImage* file – absolute, Basic and untyped machine code types are supported – of the chosen application using a method and code determined by the user.

Applications can be configured to function only on a specific machine – using the code found in the ID chip of the chosen micro, on a group of machines – with a CMOS resident password, or for a group of authorised users – by way of a non-resident password.

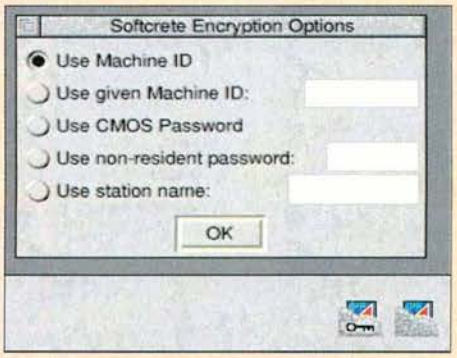
The protection offered by Softcrete is almost entirely transparent to bone-fide users – non-resident passwords, which must be entered using *!SCreteNRP* before a protected application is loaded being the one exception. A politely obstructive error message is generated when an attempt to use protected software on an unauthorised machine is made.

Businesses, schools and home users can use Softcrete to ensure registered software bearing their name cannot be copied by staff, students and friends respectively, indemnifying them from accusations of wilfully passing on copies. Also, show exhibitors can now place full-version products on operative public view, safe in the knowledge that anyone attempting to make a copy will be foiled – but they only find out when they've got it home.

Softcrete is a small but effective tool that should see plenty of practical use. It will not single-handedly stop piracy, but helps uphold the integrity of honest users.

PRODUCT SPOTLIGHT

Price: £24.95
Supplier: The Really Good Software Company, 39 Carisbrooke Road, Harpenden, Hertfordshire AL5 5QS.
Tel: 0582 761395
Requirements: RISC OS 3



● *Keeping out sticky fingers*

THE DATABAY

Hal ponders on what really gets a gamer going

WHY do we play video games? Chris Jarman wrote to me recently to see if I could shed some light on the matter. He's 59 and enjoys playing flight simulators, which he says take him back to his days in the Navy, but he can't understand the point of playing games such as Lemmings.

Other than watching little shapes move about, he says, there doesn't seem to be any benefit.

I can't really argue with that, but it does open up the question of what motivates people to play different games. All of them have tasks, from shooting down enemy aircraft to collecting small pieces of fruit, but what makes playing them so compulsive?

A video game is really just relaying audio-visual information to the player, who must process this and make the appropriate moves in order to reach some specified goal. What that particular goal is depends on the game, but all that's going on is some elaborate hand-eye co-ordination, and it's these feelings of control and interaction that are addictive.

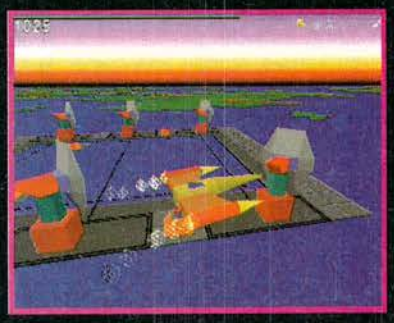
One of the important factors is the speed of the computer's response. If it took half a second for the game to respond to your moves, the chances are that you'd quickly become irritated and lose interest, which is why a game running at 50 frames per second is much more enjoyable than the same one running at a quarter of the speed.

To enjoy a game, you need to be able to relate to the scenario, and some of the newer titles have some pretty obscure ones. I have a feeling that some games players may be able to enjoy more of the games because they're able to suspend their disbelief somewhat more readily – it's not that they understand why they have to save the Lemmings, just that they feel more inclined to do so.

Caught in the FEDNET

The past few weeks saw the release of FEDNET's latest title, **Star Fighter 3000.** Following on the heels of the eminently playable Stunt Racer 2000, this game looks set to make some sizeable waves in the Acorn market.

Even in an embryonic state, it was quite able to pull the crowds at the Harrogate show earlier this year. I have to confess that, at the time, I thought it couldn't get much better, so I was somewhat surprised when I caught sight of its younger brother. The new version has better graphics, more playability and best of all, more speed. So, who do we thank for this modern masterpiece of software engineering? The people behind FEDNET are Andrew Hutchings and Tim Parry, and once I was able to tear myself away from the game, I took the opportunity to ask them a few questions:



● *Homing-in*

● *Keep your cool ...*

● *... and get your just rewards*

How did you get the ideas for Star Fighter?

We'd already written a flight sim and a racing game, and since we weren't too happy with the success of Stunt Racer, we decided to try something different. We'd seen Starwing on the Super Nintendo and the game evolved from there.

The polygon routines have improved immensely since Stunt Racer, but how much more speed do you think you could get out of them?

The routines could go a little faster – we could still tidy them up a little – but they are near their limits. The ARM3 version runs at about 20 frames per second, and an ARM250 machine can do around 15 frames per second.

Did you consider using texture mapping on the ships as well as the ground?

Yes – we also thought about light sourcing, but in the end we opted for a more detailed polygon ship without textures or light sourcing to keep the faster rate of play. We didn't want it to end up looking like a beautifully shaded triangle.

Have you any future games you might release?

If we're satisfied with Star Fighter's performance, we would think about writing a follow-up to Stunt Racer. Provisionally called

Death Racer 4000, it would expand on the Killer section of the game to form a demolition derby, using the enhanced graphics routines of Star Fighter.

It might also include the serial link and split screen options from Stunt Racer. We didn't include those in Star Fighter because we decided that it was better to spend our time improving the rest of the game rather than writing a two-player mode. We want Star Fighter 3000 to really show off the Acorn's capabilities – perhaps the successor to Zarch.

● If you played the demo version on last month's Megadisk, you will have already experienced some of the features of Star Fighter. The full version allows you to fly different ships on certain missions, and there are extra touches such as varying atmosphere characteristics which change the way your fighter handles. The game has 108 missions and it will be released early in November. If you would like to contact FEDNET, you can ring them on (0332) 840487.

Passcode corner

Thanks to Nathan Atkinson, David Bone and David Paisley for writing in with the passwords to **Flashback**. I published the codes to the Easy level last time, so here are the rest.

Normal	*Expert*
STRUCK	OLIVES
DYNAMO	MYRIAD
REDONE	NEROLI
POLISH	EERILY
BECALM	TRUNKS
UNMADE	VERIFY
IGNITE	PSEUDO

● If you want to watch the end sequence, type the password PYKNIC.

Nathan's been particularly busy recently – he's also completed **Small**, and here are the passwords.

● *Get on with Flashback*

The last one shows you the maps for all the levels:

THOUGHTFORM
FLANDISH
CHAOSRUBBISH
VIRTUALKIDSTOYS
CHEESEPLANT
SHELLBAGS
IHATEDINOSAURS
SHAMANSHAMBLES
EXISTENTIAL
OTHERPRESENCE

I. M. Richards has sent in a cheat for **Premier Manager** – as you start the game, go on to the Transfer Market and proceed as if you were going to sell a player. Click in the black area just underneath your reserve places, and in this way you'll be selling a player that doesn't exist. Select the highest bid and walk away with the profits. Admittedly, this can cause an error once in a while, so it's worth saving your game before you attempt this trick.

Coronium capers

Now you've got the second whistle in **Exile**, fly to Eriadnus and de-activate the left-hand transporter. In the small cave above is a grenade-firing burger – remember your position nearby and collect as many grenades as you can. De-prime them and collect the protection suit stashed there.

Make your way to Sarawak Cavern and destroy the burger at the top. You can now unlock the door leading to the Pericles' engine. Throw the RCD into the transporter in Behemoth, shooting the burger there, and return to the engine.

Remember your positions there and walk left until you find two robots and a transporter. Using grenades, blow the active robot into the transporter, then teleport to the engine and turn it on.

The remaining robot is Chatter, and he needs to be moved out in the same way. Leave him in Behemoth and fly along Yarrow Tunnel to the dangerous bush next to a small gap. You need to get through there and destroy the wasps' nest, which isn't particularly easy.

In front of you now is a moving block, and you should let it fall down Blackdown Tunnel into the water in Hercules Tunnel.

Eradicate the green frogmen and manoeuvre the block to the shaft leading up to Brazil Cave. Shoot it upwards, close to the gargoyle there, and it will reflect the gargoyle's firepower against itself. Destroying that removes another gargoyle in Brazil Cave and allows you to move the block to Cetus Tunnel.

● *Coming to a screen near you*

Grab a piranha there, killing the rest, and find the coronium. Use its weight to walk through the mushrooms, then drop it and float to Triton Tunnel.

The bush there gets excited in the presence of piranhas, so whip yours out then store it away again. This will pull the Radiation Immunity Pill towards you. Use this method to collect it, then move the coronium to Hades Tunnel.

You'll need to collect the other coronium rock that's nearby by throwing it over the nest there. Once done, float one rock on the block by Pascal's tile door. Drop the other one on top, and once the debris has cleared, you can now enter Pascal Cave.

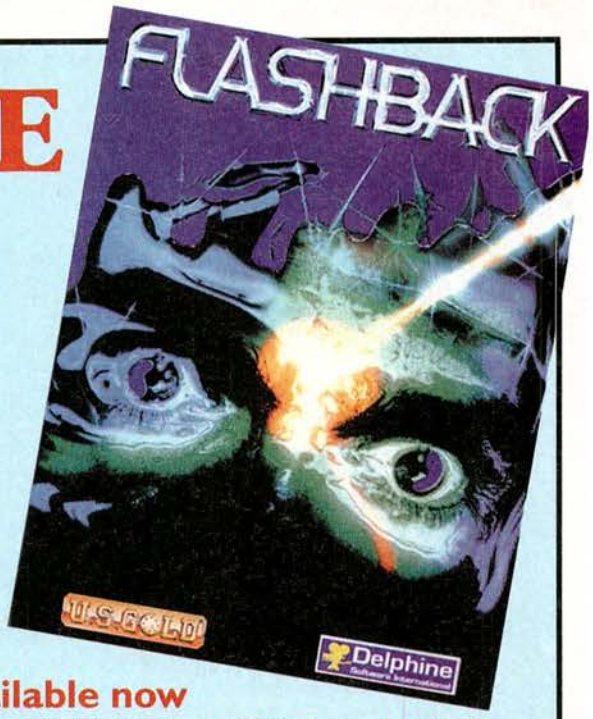
Internal error

That's all space will allow for this month, but keep reading for the latest games news and gossip – I have a feeling that we'll see some interesting titles emerge by the end of the year.

You can write to us at the following address:
The Databay, Acorn Computing, Europa House, Adlington Park, Macclesfield SK10 4NP

● *Don't feel small – use the passwords*

THE ULTIMATE ARCADE ADVENTURE



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"Flashback is fantastic... it's a game that every serious gamer, and not so serious gamer, should acquire" – ***Acorn User***

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E-Type II

...easy rider, rides again

● *A bit chilly, but I'm winning*

FIVE years ago to the issue, we reviewed E-Type. Now it's back but your driving skills have persuaded your female passenger to go for a Jaguar of her own – and a pink one at that.

You can now drive either vehicle over six different tracks which vary both in terrain and weather conditions. But as you are stylish and totally cool you never put the top up, even when it's raining. This is not a simulator but a race against the clock, terrain and other drivers.

You can choose between manual or automatic control via the mouse or keyboard and you can try your hand at different modes of play – one car, two-player or pursuit mode. These can be wholly or partly human controlled or you can drive against the computer, or set the computer against itself. The skill level can be set as well, with expert driving at level nine.

I found the mouse the best way to play but I feel a joystick would also give you better control than the keypad – I didn't have chance to try this out though. The mouse buttons give you control over the three foot pedals: Clutch, brake and accelerator. If you choose manual control the arrow keys move the car up and down gear.

The first two modes are pretty straightforward allowing you to race along avoiding rocks, policemen, trees and oil slicks. Watch your speed, though. The speedometer is colour-coded and the top of the green scale is 50mph – exceed this through the speed check areas and you'll receive a time penalty. You can run over the police if you want but you'll still be fined.

One irritation I did find was that I was always caught speeding while the over-taking lorries and undertaking cars got away with it ...but then they always go for the nice cars, don't they.

If you have ever had the urge while travelling down two lanes of a motorway to demolish the cones separating you from that nice empty lane, this is your chance. A better way of relieving irritation, I find, than ringing the Cones Hotline.

As you cruise along admiring the smooth graphics, excellent road holding and superb views, you may notice signs for oil, fuel and lasers on the gantries. By driving under them you can collect them. The first two will enhance your progress while the third is an excellent way of disposing of unwanted obstacles.

In pursuit mode this *obstacle* may be your opponent. You both set off at the same time on the same short piece of road. Who can finish first? Cheating is allowed and tactics positively encouraged. I love the way the oil slicks exploded, but of course it wouldn't be cricket to shoot the coppers – would it?

I loved this game the first time around and it is a while since I played it but the touches are all there – the hands of the wheel, the feel of speed, the gauges and key fob. The chicanes, tunnels, spins, bumps and crashes are there too with sparks flying as you catch the pylons, an elegant sinking motion as you drive off the causeway, or the flying hair and clothes as you are thrown up and down in a head-on collision. By the way, the girl's skirt still reveals her pants while the bloke shows off an elegant builder's cleavage.

The top speed of an E-type is 150mph but it is not obligatory – or, at times, advisable – to sit on the accelerator. After all, if you take too many bumps the bumper falls off with a resounding clang or the boot lid flies open and you sit alone and unloved in the middle of the road.

A track editor comes with the game and is very easy to use. All you have to do is load Edit and type in what you want. You can choose different sectors – there are 500 sectors in one mile of track – or alter the width of the road, the type of bend and so on. It's quick and intuitive even for the non-programmer. One aspect I particularly liked is that you can add sprites where you like, a couple of trees in the middle of the road, or even add your own sprites – ensuring they are the right size. You could even add a few scans of friends along the roadside.

Gordon Key has done another good job and though all the tracks were not completed at the time of going to press, they looked challenging as well as stunning. What gives this game staying power is that you can start playing immediately while the text-based editor gives you endless variations. What's more, it's probably the closest I'll get to driving an E-type.

Jo Giles

PRODUCT SPOTLIGHT

Price: £34.95
Supplier: 4th Dimension,
1 Percy Street, Sheffield.
Tel: 0742 700661

● *Didn't someone say something about more haste and less speed?*

● *Can I get every one of these cones?*

Stunt Racer 2000 Extra Tracks

Wild Bill Hiccup's Revenge

IF you haven't played Stunt Racer already, and this can only apply to people who have accidentally emigrated, the idea is to rocket around all manner of warped tracks as quickly as possible – causing mayhem in your wake is optional. Even greater fun could be had by grabbing the person nearest to your machine and challenging them to a high speed duel on one of the deadly Killer courses.

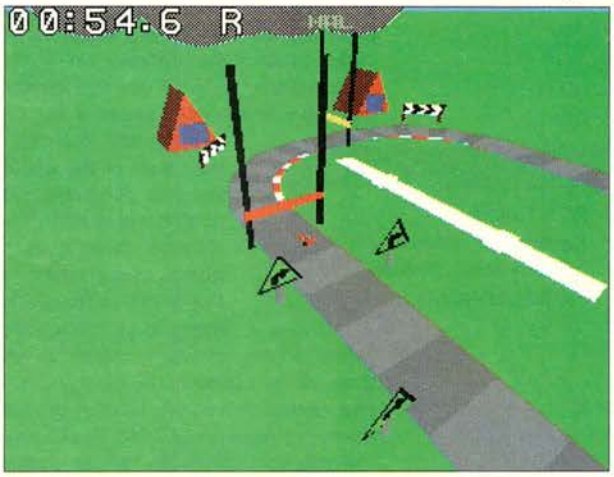
Times have moved on, and if your unfortunate victim is perhaps beginning to evade your death charges, or that frustratingly tricky moon-jump just isn't quite as challenging as it was, maybe the Extra Tracks disk from Fourth Dimension could bring back that old buzz of excitement.

If you're running a floppy-based system, the disk supplied in the package can be used as it stands – simply change the series from the configuration screen, and swap disks. An installation program is supplied for owners with a hard disk. Once that's complete, you can work your way through the 17 new tracks on offer – and there are some really twisted roads designed to devalue your vehicle rapidly.

However, they aren't for the faint-hearted, and you really do need a decent car to be able to make any headway. The first race involves a mammoth jump and if you're not up to it, the season stops there – time to open the hood for some judicious hacking. Two brand new Killer tracks are included and, although the second one runs a little slowly due to the number of objects on the map, both are impressive and guarantee a great deal of fun. If you can find someone willing to take you on, that is.

This is a supplementary disk so you need the original game in order to load the tracks. It's possible the pricing is a teeny bit high, but if you've enjoyed all that the original had to offer and you want to see more, grab your crash helmet and take a look.

Hal



PRODUCT SPOTLIGHT

Price: £19.95
Supplier: 4th Dimension, 1 Percy Street, Sheffield.
Tel: 0742 700661
Requirements: Original Stunt Racer 2000 game

Virtual Golf Augusta

A new course for golfing fans

WHAT'S the perfect accessory for Virtual Golf? A pair of gloves, perhaps, or maybe an electric caddy? Or perhaps you'd like to ring the changes and visit a different club. Fourth Dimension has just released the Augusta course as a supplementary disk, so I stocked up on golf balls and set forth.

The data is held in one application that you can copy to your hard disk if necessary – otherwise you can run the program directly from floppy. Once you have loaded it, you can play the game as normal.

It is obvious that quite a bit of work went into producing this package. Behind the banks of trees lie views of bridges and cities, and the holes themselves can be beautifully picturesque. The thirteenth hole has a river that runs along its entire length – lovely to look at, but somewhat tricky to avoid. The range of holes is well-balanced although several of the fairways are a pretty tight squeeze, and some of the greens have a habit of sending any slightly inaccurate shots rolling wildly off course.

Overall, I preferred the Augusta course to Wentworth. It's difficult to say why – although the azure sky might well have something to do with it. Where some of the Wentworth holes looked a little spartan, Augusta is packed with detail – trees, lakes and the undulating fairway filling the screen.

All the features of Wentworth remain – you can practise a hole of your choice or take a walk to the driving range. There are also six new tournaments which you can enter once you have improved enough to qualify. However, it's worth noting that players you have built up in Wentworth can't take their handicaps to this new course.

Hal

PRODUCT SPOTLIGHT

Price: £16.95
Supplier: 4th Dimension, 1 Percy Street, Sheffield.
Tel: 0742 700661
Requirements: Original Virtual Golf game

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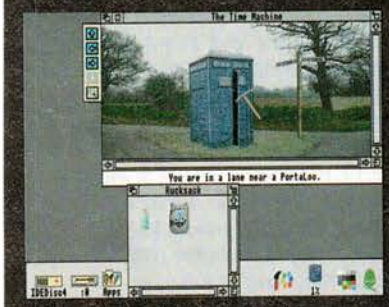
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As easy as one, two, three

Mike Cook is back again with a sackful of your questions and posers

AGENDA

- Electron printing
- Master manual
- Screen quality
- Broken directory
- Grey to colour
- Spectrum access
- Easyword advice
- Risc PC vs A5000

Q FOLLOWING the September '94 issue, I have some advice for Mrs Barker. I have the same setup and would agree that Easyword does take some getting used to.

Create a document as usual when you are ready to print, click Menu over the page and go to the sub-menu Layout then into the Headers and Footers menu. You will now see a dialogue box with a hash sign (#) in one of the boxes. It is used to increment the page numbers and you would use it in the form: PAGE #.

If you don't want page numbering, simply place the caret in front of the hash sign and press delete and OK in the bottom right-hand corner. Page numbering will now be ignored.

The headers and footers section is a very useful utility and with a little experimenting I am sure that Mrs Barker will get the hang of it.

David Royle, Broadheath, Cheshire

A *Thanks for the tip. I think that Easyword is showing its age and does not live up to its name.*

Plus one printer

Q I HAVE an Acorn Electron Plus One and would be grateful if you could provide me with a list of suitable printers which would work with my *British Museum* technology.

Would a colour dot matrix work or should I stick to mono printing?

A. Cliffe, Lockwood, Huddersfield

A *You'll find that most of the dot matrix printers will work with your Electron including the colour ones. However, in order to get it to print in colour you'll have to send it the appropriate control codes. Also, you will find that most bubble jets will work with the standard fonts.*

Where you'll run into trouble is with producing fancy fonts and graphics as you will probably find that there is no software support for your computer. I would recommend that you pick up an old printer second hand or at a car boot sale. If it works on a PC it should be fine. The only types of printers you have to avoid are ones for Apple and Commodore machines as these have non-standard interfaces. You might find your local technical college might be able to offer you some assistance.

TV or monitor

Q MY BBC Master 128 is currently connected to a TV so can only really be used for games. A technician who came to service the school's Acorn said it is possible to buy an RGB converter for about £30 which allows the TV to be used as a monitor for programming and so on.

Where would I get such a converter from and how much would it cost? Alternatively, should I be looking at an actual monitor and which one?

Mrs S. Webb, Tysoe, Warwickshire

A *I am not sure what sort of converter he meant. If the TV set has a scart socket on the back it is possible to connect it directly to the computer, and while there will be some improvement it will be marginal. The main factor governing picture quality is the phosphor dot pitch of the screen. That is how close the dots are on screen. These tend to be poor (wider apart) for TV sets and hence there is little improvement with direct connections.*

If, however, this converter plugs into the aerial socket of your TV set it will offer no improvement at all. Therefore, if you want better pictures you should consider a monitor, the secondhand market for these TTL input monitors is quite good, if you are buying, and you should be able to pick one up for under £50.

However, I am surprised you say that you can't use the computer for programming. Try switching to Mode 7.

Manual printing

Q I AM using a Master 128 with a Panasonic KX P1081 printer. Unfortunately, I don't have the manual for the computer. The trouble is I can't get the computer to *talk* to the printer, consequently, if I type something in View it will not print out.

I have tried *FX5,1 and VDU2 but it makes no difference. I have tried Control B and LIST but still nothing. The only key that seems to work is the Escape key which sends a line feed to the printer. I know that the printer works okay because I've used it with an Archimedes. The Master works on its own but they will not communicate with each other.

I did try the computer on a friend's Panasonic printer but the printer jammed and had to go back to Panasonic for repair. So I dare not try any other printers. The Control Panel setting has not been altered and reads *No Ignore. LF Parallel.* Without the manual I don't know what the settings should be.

It's very frustrating not being able to print anything. Is there something that should be adjusted on the computer, the dip switches on the printer are adjusted according to the printer manual. Perhaps there is something wrong with the printer port?

Peter MacDonald, Wincanton, Somerset

A *This sounds quite a puzzle – let's review the facts. First of all there is no way that your Master could have caused your friend's printer to jam so there is no need to feel guilty there. Secondly, if your printer works on the Archimedes there is nothing wrong with it or the lead. So we are left with your Master being the culprit.*

You say that the Escape key produces a line feed, so try VDU2:VDU 11 which should also give you a line feed and VDU 2:VDU 7 should force it to make a short beep. If that checks out then I suspect it is either the printer VIA or more likely the printer buffer chip. It could be that some of the most significant bits coming from this chip are permanently low, causing the printer to obey the control codes but yet print nothing. The chip is a 74LS244 labelled IC5 and should cost less than £2.

Directory of errors

Q I HAVE a problem with my hard disk on my A5000. Whenever I try to load my Eureka directory I encounter *Broken*

Upgrade or replace

Q AFTER owning a 2Mb A3000 for several years, I have decided that a major upgrade is now necessary. I was considering a Risc PC but I need a few questions answering first.

Would Impression Junior and some of my favourite games – Sensible Soccer, Diggers and Chocks Away – work? Can I slow down the speed at which games run? Is the Risc PC reliable as I have heard that there are technical problems with the new system.

A new machine would mainly be to help me with my studies. Would an A5000 be better and will hardware peripherals still be made and developed. I want to buy a machine to last me 10 years. Is that the Risc PC and is now the time to buy?

Matthew Walker, Retford, Nottinghamshire

A *I am not sure where you get the idea that the Risc PC is not reliable. However, it is a new machine and has a significantly different architecture to previous machines. This means that certain tricks that programmers used before with the older machines will not work on the new one. This is nothing to do with the unreliability of the Risc PC but rather the enthusiasm of programmers to squeeze the most out of the machine.*

For example, Chocks Away will work but the serial link option will not. This has been fixed and an upgrade should now be available. The ARM Club has also produced a patch called GameOn which will let many of your old favourites run on the Risc PC.

*You can slow the machine down – or any other ARM 3 computer – by issuing a *Cache off command. This will prevent the on-chip storage of instructions which is responsible for much of the speed increase in the newer chips. It is also possible to slow down the computer by feeding it a rapid series of interrupts. There are a few PD patches that can do this.*

We all want a machine that will last 10 years, but that is an awful long time in the computer world. While the hardware will definitely last that long, its performance will probably begin to pall. However, I certainly think that the Risc PC will be very good for five years. With its ability to accept processor and memory upgrades I think it is the best long-term bet around.

It is inevitable that most development will concentrate on the newer machines, so eventually there will be less for the older machines. The harsh commercial logic is that people who hang on to older machines are not perceived as having the money to spend on hardware or software. This means that although there still remains a lot of old machines about there is a rapidly reducing active purchasing consumer base. This has been the trend for the last 15 years and I can't see it stopping now.

Directory error when reading adfs::IDEDisc4.$.Eureka.

The error is such that I am unable to even enter the directory, but this is not my biggest concern. I've tried deleting the directory but it is not able to do that. I've thought of reformatting my hard disk but I thought it would be better to ask your advice on alternative ways to delete the directory rather than reformatting.

Z. A. Mirza, Ilford, Essex

A *The directory on the disk tells the computer where things are physically stored on the disk surface. The Broken Directory error message means that the information is incomplete in some way. This means that the computer can't access that data.*

However, if the computer does not know where to access it then it also does not know where it is to delete it. If you reformat your disk this problem will be solved.

Another solution is to get a copy of Disk Rescue from Look Systems (0603 764114) which may allow you to repair the information in the directory.

Adding colour

Q I HAVE recently taken to home video and editing and my BBC B provides me with some super captions and credits using the video-out port via a BNC/phono adaptor into my VCR. With a Videotech processor in-between I am able to add audio and set some visual effects.

However, colourwise, all I can set are the shades of grey. I have heard that it is possible to have colour output from the video port with some alterations to the circuitry.

W T Stanton, Godalming, Surrey

A *If I were to compose a list of the most frequently asked questions this would be number one. Looking at my back issues I find that I first answered this in August 1983, but it has been some time since I last addressed it.*

All you need is a 56pF capacitor from the junction of R123 and Q7 to the junction of R135 and Q9. The actual value is not too critical and can be anything up to 100pF. The reason that this was not done originally was that it can produce a crawling dot pattern when viewed on a black and white monitor.

Emulating Speccy

Q THERE are at least three versions of Spectrum Emulators which run under native mode on the Arc, all with varying degrees of ability. The first is called !Spectrum by Dave Lawrence and consists of a relocatable module called Speculator and a dump of the 64k memory map of the Spectrum. This memory dump includes the Spectrum rom but how this is adapted for use with programs I have not been able to discover since there is no help file.

Then came !MZX from ARM Unlimited which consists of a Basic !RunImage file, a copy of the Spectrum rom, a Run file and a Help file. A *snapshot* file is required for each program in order to be able to run that program.

Finally there is !Speccy. This is available for £25 from Carsten Witt at Ristocker Strasse 5, 45739 Oer-Erkenschwick, Germany. The emulator consists of the emulator applications, a modified version of the Spectrum rom and several modules, one of which is SpecMod. All that is required is a copy of the Spectrum programs transferred on to the Arc using another program called KassTran. You connect the speaker output of an ordinary cassette player to the Ring Indicator Pin of the Arc's serial port.

Steve Bass, Dodworth, Barnsley

A *Thanks for the information. The KassTran is the missing piece to many people's problems. I did look to find !Spectrum on the Internet but I found that it had been withdrawn. I wonder if that is something to do with the copyright of the rom dump?*

You can write to Mike Cook c/o Acorn Computing, Europa House, Adlington Park, Macclesfield SK10 4NP, or e-mail to acorncomputing@cix.compulink.co.uk

He will answer any questions about difficulties you may be having with your machines, mainly those to do with hardware. If you want a personal reply ensure that you enclose an SAE with your letter.

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Of fractals and special agents

Teri Paul looks at a range of PD programs to entertain and intrigue

AS technology is this issue's *theme*, and there is a lot to cover this month, I will enter the fray of fractals with no further ado. First off is a fast and simple Lyapunov program from Roger Dahl, Bjørn Bœverfjord and Lars Ingebrigtsen which gives people, with a fractal bent, a new angle in their generation ideas.

The principles are based on an idea in *Scientific American* that by using the standard formula for population growth in a closed system, x=r*x*(1-x), and systematically varying the population growth factor, r, you get a chaotic system. The results are some very pretty graphics.

You have to create a ram disk before running the program or it won't work, then with Select drag a rectangle to be magnified. If starting on the right side and pulling left, the image will be flipped. Clicking Adjust returns you to the original.

Click the Menu button and you'll be asked for some input, in particular an AB sequence. Simply enough this is just a range of As and Bs in any order and in any amount. This details how the growth factor in the formula is varied. You'll also be asked how many iterations are to be made at each pixel – any number. You can also set the palette, though all it does is load a list of colour values sorted in different ways. Finally, pressing F changes the FINERY% variable, while Z saves the screen.

Music to croon by

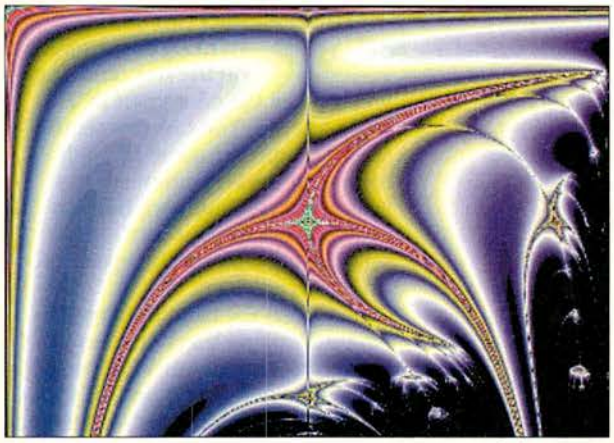
Two new Trackers appeared on my desk courtesy of James Coates, entitled **Burning** and **Lament**. He's also told me that work is under way on a new Christmas extravaganza of Power Carols – watch this space.

New kids on the block

Though it isn't altogether fair to call James Aylett a *new kid*, I'm going to anyway as he has launched the Xi Software PD Collection. I am very fond of desktop sillies, so it is with some trepidation that I introduce you to **Tortoise**. This program is a must for anyone who *hates* such pieces of insanity.

Why should anyone care? Well, a government initiative has led to a new branch of Neighbourhood Watch to deal with the Desktop environment, with the particular responsibility of keeping it clear of all running, jumping, dancing and exploding things.

In practical terms you now have: Tortoise the Tortoise (Patrol Captain) with the responsibility for such critters as hedgehogs and ducks; William the Wanda-Killer (Patrol Sergeant) with the special brief for cats (Neko) and fish (Wanda); the third member is Stephanie Stephanie (Patrol Private) whose aim is search and destroy programs on startup. Loading the program starts Tortoise on his patrol. He wanders up and down the iconbar looking for windows resting on top of it. If this does not fall within his list of accepted programs he will make a citizen's arrest.

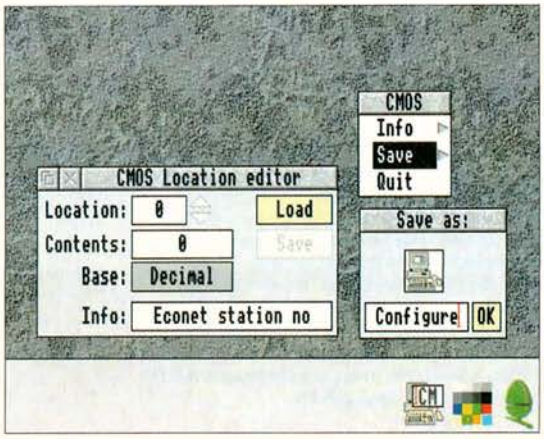


● *Lyapunov in action*

More of the undercover type, William performs secret raids on full-screen windows as well as attempting to find any windows that move when they shouldn't, or stay still when they shouldn't – Neko for instance. Behind the scenes, Stephanie interrogates every program as it starts.

You set the programs you want to accept and the ones you wish to *arrest* by loading the data file inside the utility into Edit. When such subversive programs are discovered by any of the three vigilantes you are asked by the relevant officer if you want the offender arrested or pardoned. Brilliantly silly.

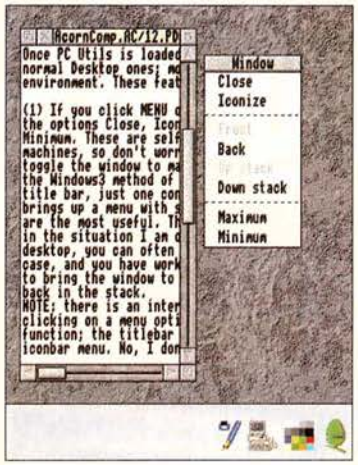
If you prefer your PD less flippant then take a look at Xi's utilities. The **CMOS Editor** allows control of the CMOS ram locations 1-239, down to bit level – 0 which is the Econet station setting. This allows locations to be set which are unaffected by Configure and also allows you to easily see which locations do what. Part of the editor window gives a brief description of the location you are ➤



● *Get the low down on your system*

editing but these are not complete.

NetCtrl is to enable a network system manager to control the network from the monitor computer. Net On toggles on/off when you click on it and controls the state of the network modules. This means that you cannot be *controlled* by another computer over the network if your Net On does not have a tick beside it – but neither can you control others.



● *What's in a name? Try a different style with PC_Utils*

The sub-menu contains another further sub-menu, which designates rooms of computers, or maybe areas in the building. You can opt for a two minute warning that a reset is on the way, and reset will reset all the computers in a room at once. You can also set the station numbers/names for each room and the Net sub-menu has four preset net numbers, but you can also type in your own. This selects a network for the operations using this program.

If you feel the need to have a desktop looking like Windows – though as Chicago (or Windows'95 as it's now called) will probably look like RISC OS why bother – then load up **PC_Utils**. This loads new sprites for the !System, !Fonts and !Scrap applications and also for directories. These are monochrome, though you can change them back to normal and the line to change is given in the Help file.

If you click Menu on a window's title bar, a small menu opens containing the options Close, Iconize, Front, Back, Up stack, Down stack, Maximum and Minimum. This was derived from the Windows 3 method of having one control icon at the left-hand side, rather than several control icons along the titlebar. This is useful if your way of working means that you can only see a bit of the title bar. In addition, if you drag a file to the PC_Utils icon it will be loaded rather than run.

Clicking Menu on any empty part of the iconbar, or Select or Adjust on the PC_Utils icon, reveals a small menu containing the options Shutdown, Save, and RISC OS. Shutdown does just that, and is equivalent to many similar programs in the PD world or uses the actual RISC OS 3 shutdown procedure. Save leads to a save box with three extra icons. The one immediately below the filename is the filetype to be used – if left blank then it will be left un-filetyped – while the two below are the start and end addresses. All three are in hexadecimal.

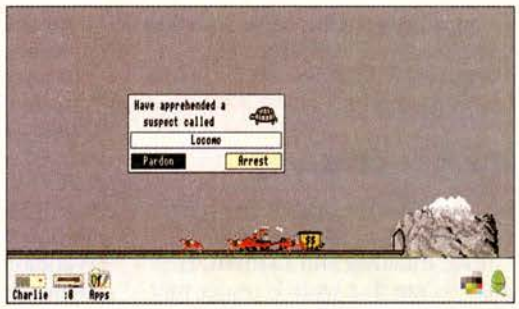
PC_Utils will perform a *Save using the filename and addresses given and filetype the file if necessary. Alternatively, the RISC OS option mimics and Exit on the Task Manager enters RISC OS. All in all, it has possibilities.

More familiar in some ways is **User Select** which lets you open directories/files and execute commands from a list. This is ideal for people who don't like a cluttered backdrop. An alternative to Menon, it is easier if you have a lot of directories as User Select has one window which you can close when you don't need it.

This new iconbar resident has an automatic window which is divided into two – names and three buttons: Prefs, Add and Save. Click Select on a name and it will open or run, click Adjust and you'll receive information about it instead. The Menu button removes the item.

The buttons give you access to a preferences window, while Add opens a window where you can write the identifying name (used in the list) and the full pathname (this can be a system variable if required) and you can also specify if it's a file, command or icon.

If you'd find a more *permanent* ram disk useful, then boot up **RamDisk.** This application is copied on to a floppy or hard disk and can be included in a boot sequence. When booted or run a ram disk is created and the saved disk copied into it. This then acts like a normal ram disk until quit or shut down, when the ram disk is saved back to disk. Neat.



● *The new guardians of the iconbar, Tortoise*

PD LIBRARIES

8-BIT HOUSES

8-bit Software, 17 Lambert Park Road, Hedon, Hull, East Yorkshire HU12 8HF.
BBC PD, 18 Carlton Close, Blackrod, Bolton BL6 5DL.
HeadFirst PD, 97 Chester Road, Southport PR9 7HH.
JJF PD, 49 Hollyberry Close, Winyates Green, Redditch, Worcester B98 0QT.
Masterdisc, 2 Seaview, Hoylake L47 2DD.

32-BIT HOUSES

3PD Swapshop, 66e Picardy Road, Belvedere Kent DA17 5QN.
Alpine PD, PO Box 25, Portadown, Craigavon BT63 5UT.
APDL, 39 Knighton Park Road, Sydenham, London SE26 5RN.
Arcaynia, PO Box 1927, Sutton Coldfield B74 3QZ.
ArchAngel PD, PO Box 41, Exeter, Devon EX4 3EN.
Archimedes Fractal Group (AFG), 30 Bowen Drive, West Dulwich, London SE21 8PN.
ARM PD, 109 Woodland Drive, Cassiobury, Watford WD1 3DA.
ARMistic PDSL, 136 Wellesley Road, Ilford, Essex IG1 4LJ.
Australian RISC, 241 Hawkesbury Road, Winmalee NSW 2777 Australia.
Cheap PD, Greenways, Grubwood Lane, Cookham Dean, Maidenhead, Berkshire SL6 9UB.
Craig Beech PD, 30 The Deerings, Harpenden, Herts AL5 2PE.
Datafile, 71 Anson Road, Locking, Weston-Super-Mare, Avon BS24 7DQ.
Datastream, 34 Norbreck Close, Great Sankey, Warrington, Cheshire WA5 2SX.
Different Ideas, Eyton House, Eyton, Leominster, Herefordshire HR6 0AG.
Digital Phenomena, 104 Manners Road, Southsea, Portsmouth, Hampshire PO4 0BG.
DigiTech, 20 Downing Crescent, Bottesford, Scunthorpe, South Humberside DN16 3LS.
Eureka PD, 78 Rawlinson Road, Southport, Merseyside PR9 9NE.
Five Star Marketing, 4 Shepherds Walk, Bushley, Herts WD2 1LZ.
Gem PD, 15 Partridge Down, Oliver's Battery, Winchester, Hampshire SO22 4HL.
HeadFirst PD, 97 Chester Road, Southport PR9 7HH.
LowCost PD, 6 Furzeland House, Sheephouse Way, New Malden, Surrey KT3 5PH.
Lunchtime Disk Magazine, 203 London Road, Chesterton, Newcastle, Staffs ST5 7HF.
Moonlight Graphics, PO Box 3569, Cape Town 8000, South Africa.
Naked PD, Fayence, Fulford Road, Fulford, Stoke-on-Trent ST11 9QT.
Planet PD, 37 Manor Drive, Berrylands, Surbiton, Surrey KT5 8NF.
Skyfall, PO Box 2220, Birmingham B43 5RZ.
The ARM Club PD Library, 19 Woodberry Way, London N12 0HE
Westbourne Services, 34 Bradley Street, Wooton-under-Edge, Gloucester GL12 7AR.
Xi Software, 1 Avon Drive, Alderbury, Salisbury SP5 3TA

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The body of health

Chris Drage concludes his investigation in to how our schools approach the thorny subject of sex education

LAST month we explored the issues surrounding the way schools deliver sex education using resource-based learning materials, among which will frequently be the classroom computer. In terms of delivery of this aspect of the curriculum, I think we can say with confidence that for most parents there is little cause for concern.

However, hot in the heals of software and data theft, hoaxes and virus abuse, the recently emerging phenomena of *computer pornography* promises to put the rest in the shade and represents a growing concern for everyone.

Pornography has always tended to closely follow the current media/technology of the time. In the 1950s it was paper porn, in the 1960s-70s it was movies. The 1980s saw the advent of cheap videos and now in the 1990s, computer-based porn has come of age.

Never before has pornography been harder, more explicit, more available and in a *perfect* state every time. Yesterday it was pictures, movies and video, today it's digital and it's on a floppy disk that Farnsworth of the Lower Sixth has in his back pocket. But where did that disk in Farnsworth's pocket come from?

No more brown paper bags

In most cases, computer-based pornography tends to be hidden.. Items can be found lurking in pirated games or in games bought from car boot sales, while some CDs have been found to contain images or animations. Ironically it is the relatively small Acorn market which protects us. Most *games* are developed for the PC market. However, we should be careful to walk the right road between complacency and paranoia.

With notable exceptions, police forces throughout the country are hopelessly ill-equipped and uninformed about either computer piracy or computer pornography. This lack is one felt by the majority of parents while their children deal in increasing depth with IT in all its forms.

More insidious is the *information superhighway*. Several thousand bulletin boards worldwide can be easily accessed by a simple phone call or via international networks like the Internet. A good many of these have so-called *adult* areas. If you have a modem and an account, or simply access to a subscriber's modem, much of the world's most extreme pornography is but a phone call away.

Some bulletin boards are entirely dedicated to the provision of porn and although possession of certain types of material is illegal in this country, access to a country where there are no legal constraints requires only an international phone call.

As the downloaded data arrives as TIFF or GIF files, it is not a difficult matter for users of any computer system to translate the data from this format into one commonly available to the lads in Farnsworth's class – then it takes only minutes to copy the disks.

The same principles of distribution can apply equally to shareware and PD libraries. Just scanning some of the catalogues and sampler disks for games can openly reveal advertisements for pornography. The Acorn market has been less susceptible to this abuse than other – notably the PC market – but images are often available in *standard* multi-platform formats.

Depressing though the thought may be, it is a fact that hard core pornography, like illegal drugs, is available to our children in the playground and after school.

Computer graphics have undergone a total transformation since the 8-bit, BBC B days and chunky, almost comical images have been replaced by images of photographic quality and some surpassing broadcast quality. Unfortunately, as PhotoCD and Replay – and now MPEG images – continue to improve, so will the quality of pornographic images making their ownership even more desirable.

In fact, I suspect that animated sequences and moving images will constitute the most popular format for porn in the near future as the hardware/software to display moving images becomes standard on machines. Today's computer-based material eclipses are in magazines, videos and so on and can be interactive in a way impossible with other media.

Understanding and control

It is now after school and Farnsworth and his chums have returned to his home, seemingly to enjoy an hour's gaming on his computer.

The treasured disk that has been flaunted at breaktimes and quietly talked about during group discussion sessions in class, now reveals its pornographic contents, cleverly hidden behind a *cover-up* game which, when the participants are disturbed, can be reinstated instantly at the touch of a key. To Farnworth's unsuspecting parents, all that's going on is a game of Space Invaders.

Even if Farnsworth's parents were suspicious, would they necessarily have the skill or knowledge to be able to scan the contents of the disk

anyway? All this might well be put down to"just a part of the adolescent male's growing process", if it weren't for the nature of material available.

When you realise the level to which the *girly* postcards and group sex scenes of yesteryear have been superseded by stories and images of ritual killing, mutilation, defecation and bestiality of both adults and children alike, you realise there is strong cause for concern. Not only are children's IT experiences being compromised but the social spin-offs and consequences do not bear thinking about. If such material satisfies a growing hunger for bestiality, society better watch out.

Surveys conducted by working parties from such bodies as the British Computer Society, the University of Central Lancashire and Educational Computing & Technology Magazine have revealed that the scale of the phenomena is hardly isolated nor easy to control. Educational Computing & Technology (April '94 issue) reports that many teachers are aware and extremely concerned about the threat and the effect on children exposed both intentionally and unintentionally to porn.

Indeed, it goes on to state that there were even those teachers who "expressed a reticence to upgrade their equipment in school to include the sort of hardware which they know has been used to obtain pornography." The police are not complacent in this matter and are establishing schemes to counteract the appearance of pornography in schools.

Reports suggest, however, that huge amounts of material is appearing in school playgrounds and that adults play a part in its production and distribution. The law is fuzzy in this area and needs to address more directly the electronic distribution of pornography.

What can you do?

Throughout this piece I have assumed that the use of pornography concerns male pupils and surveys confirm that this is almost entirely a male province. To be more specific, it concerns boys at the secondary level, with only a few incidents being reported in primary schools.

As a concerned parent myself, it's the nature of the material which I find particularly worrying as the sadistic, gratuitous violence and downright horrific hard porn of today is something I would not want my children exposed to under any circumstances.

I would suggest that if you do suspect your son is participating, perhaps some close monitoring of telephone use might be necessary. For all schools the message is clear: The issues need to be discussed in the context of gender stereotyping, equal opportunities, bullying and sexual harassment.

Computer pornography is on the increase and it's not going to go away. Like other forms before it, computer pornography will never be eradicated.

The least we can do as parents and teachers is to be aware of the extent of the problem and guide children to make their own decisions about the misuses of IT.

But let us not get this problem out of proportion. Out of the 44,767 prohibited indecent items seized by Customs and Excise in 1992/3, only 144 were computer pornography.

Further information/advice available from:

Concerned teachers who want more information are invited to contact the Educational Computing editorial staff who will handle all enquiries in strictest confidence and are prepared to act as a neutral contact point.

- Educational Computer and Technology, Training Information Network, Jubilee House, The Oaks, Ruislip, Middlesex HA4 7LF.

The European Leisure Software Publishers Association produced a White Paper on Computer Pornography in September this year. This aims to address some of the concerns expressed by parents, the different laws and procedures in place to deal with computer pornography, and gives advice for parents.

The ELSPA Crime Unit (0368 833 810) is prepared to act as a central point for reporting and investigating material found on bulletin boards.

- ELSPA, Station Road, Offenham, Near Evesham, Worcestershire WR11 5LW.

Seeing is believing

John Clemence looks at the animal kingdom through their eyes

ARE your children interested in animals, in particular their eyes and how they see. If so, Animals in Action, Vision may be what you are looking for. This package consists of a 20 minute video, a sprite file, a set of teachers notes and photocopiable worksheets and a data file for the Key family of data managers and spreadsheets.

All the sheets are provided as draw files so it is possible to make alterations for yourself. However, since they are draw files, altering the text could be quite laborious. If you have a colour printer you might be tempted to print the work sheets for yourself because the draw files contain colour pictures, while the published sheets are distributed only in black and white, probably in order to make photocopying easier.

I understand that there is another pack available called Diversity which concentrates on the differences between animals. Both packs are aimed at schools who don't yet have CD-Rom players. Hence the video tape and the sprite file.

The material states that it is intended for use with 7 to 11 year olds. I would be surprised if the majority of children in this age group found the six worksheets sufficiently motivating. This is not to say that the ideas and activities are not interesting for the children to carry out.

But given my classroom experience, teachers would want to work with the children quite closely in order to make sure they are reading and understanding the text, as well as carrying out and thinking about the practical work. It has to be said that most school libraries will already have the same material published in full colour and with equally appropriate activities and explanations.

Only the final two worksheets make use of the data file provided. Even though I had never used Keynote before I had no difficulty in following through the searches. However, I never felt really convinced that I had made any significant discovery as a result of using the computer material. Keynote comes with a variety of files, including Minibeasts, Pets and Garden which would also be useful if you are looking at the general topic of animals.

The sprite file consists of 16 colour pictures of the 18 animals included in the data file. I found that when using a Risc PC some of these were good enough to experiment with !Paint and give the partial effect of having a microscope to study the eyes, but this was not so successful using an A310 and a standard monitor. The important point though is that the children can use these sprites in their own desktop publishing and presentations.

The video tape in the review pack left something to be desired in terms of sound quality and even some of the editing was not as polished as it might have been. I would have appreciated much more effort on the part of the program makers to have tried to show me what the various animals could see, but the only examples given consisted of showing briefly what a compound eye shows by looking at the presenters hand through the bottom of a tumbler, and various camera effects such as showing us what the world looks like in black and white. A section of the video is devoted to animals that produce light, and while I understand that light is important to vision, it told me little or nothing about how glow worms see or what they see.

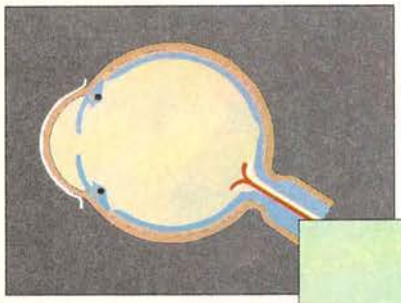
PRODUCT SPOTLIGHT

Product: Animals in Action, Vision
Price: £34.50
Supplier: SCA (Anglia TV), PO Box 18, Benfleet, Essex SS7 1AZ.
Tel: 0268 755811
Requirements: Keycount, Keynote

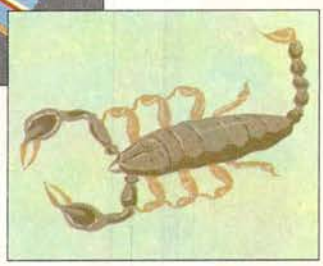
Summing up

This is a bit of a mixed bag. £34.50 seems a lot to pay for a less than exciting video, six work sheets, a data file and some sprites. Unless it answers a specific teaching problem I would doubt that you would buy it as a useful resource. Indeed, you might do a lot worse than wait until you do have a CD-Rom and then review the available material again.

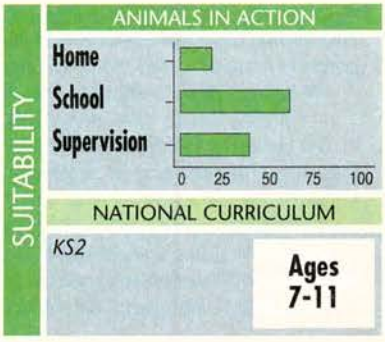
● *A sample of one of the sprite files*



● *Take a closer look at this ...*



... but no closer than this, thanks



Knowing about everything

Chris Drage examines an encyclopaedia with children in mind

CD-ROM based encyclopedias have been relatively slow to get off the ground on the Acorn platform, while there's a virtual plethora of the things for PCs. However, I like to think that as with all Acorn software, we are more concerned with quality rather than quantity and ESM's Kingfisher Children's Micropedia certainly reinforces that belief.

Aimed at children aged seven and upwards, the Micropedia is a comprehensive resource that

● *Discovering frogs and toads*

provides pupils valuable experience in handling information on computer. In fact, getting-it-right at this level is no easy matter: For a start you have the problem of reading levels to overcome let alone decisions on what information you include or leave out.

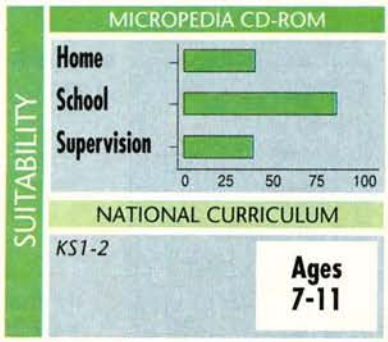
Then there's the database management side which has to be both comprehensive yet very easy to use. Kingfisher and ESM seem to have done their homework well, for the result is a truly useful resource which not only promotes data handling skills but is a joy to use.

The Micropedia comprises 1,300 entries, 1,600 colour pictures and a few sound samples. With the exception of the sound clips, all other items can be exported or printed out. How this information is organised is vitally important for children at Key Stages 1/2 and Kingfisher have sensibly opted for a topic approach. From an initial contents screen, 12 topics are presented for exploration.

Typical of the groupings are: Animals, Countries and Places, Art, Music and Books, and Astronomy and Space. From the contents page you pass to a topic screen where every linked article is shown as a heading/icon and additional groupings are displayed. With the Animals topic, for example, these include Animals, Environment, Continent, Food, Legs/fins/wings and so on.

Selecting a heading, for example: *Frog* displays a summary card on which a brief summary of frogs appears. Two branches are offered at this point: The first is to a property card which resembles a typical database card in layout, on which all the properties that have been set for a frog appear. Property cards for other animals appear on a scrolling iconbar. However, the major branch is to the article itself.

This comprises a section of a graphic, textual information and button bar. From the button bar you can see a gallery of associated pictures, enlarge the picture on



● *Find out about frogs and toads at the click of a button*

screen, listen to any sound clips available, print out the article, look at the *Did you know?* gem, see a list of related articles or go back a step at a time to a particular screen. One of the features of the text is highlighted words which are hot-linked to other articles or references. The backtrack button always ensures children can't get lost.

If children are unsure of which topic an item might be located in they can search all the articles for entries. All entries are displayed with their icons in alphabetical order, so scrolling through the list will eventually locate the entry if it exists.

An index search box provides a quicker means to get to the required entry. Another feature of the Micropedia is to collect a random selection of articles then save the group using the *Collection box* from the topic screen. In true RISC OS fashion, records are collected by dragging their icons to the collection box for storage. The collection can be named and saved for use at a later date.

PRODUCT SPOTLIGHT

Product: Kingfisher Children's Micropedia CD-Rom
Price: £90
Supplier: ESM, Duke Street, Wisbech, Cambridgeshire PE13 2AE.
Tel: 0945 63441
Requirements: CD-Rom drive

Summing up

Kingfisher's range of reference books have always been popular with children and I suspect that the Micropedia will be no exception. The only minor disappointment for some was the limited number of sound samples. ESM advertise the Micropedia as being suitable for SEN children but apart from the ability to enlarge the text screen there are few concessions.

What I would like to have seen on this CD-Rom is the ability to speak each entry or, at least selected words, to make reading easier and the information even more accessible. Well, you can't have everything and what the Micropedia does offer is both attractive and inviting. Children enjoy using it and getting information from it.

Calendar time

Make a date with a new application from Kudlian, Geoff Love investigates

WALK into almost any Primary school just before Christmas and you'll notice a strange, unwritten ritual taking place. No matter which part of the country you are in, you can guarantee that somewhere in the school someone will be making calendars and Calendar from Kudlian Software could revolutionise this practice.

After loading, clicking on the iconbar will display a page of a traditional calendar. A single month is displayed at the bottom half of the page and the top half is empty ready to receive a graphic. This could be a piece of clip-art or a picture created by a child using one of the many available art packages. Calendar accepts both draw and sprite files and they are simply dragged and dropped on to the space. They are then automatically scaled to a suitable size.

Clicking on the bottom corner of the calendar turns to the next month where a new graphic can be dropped into place.

Use of the menu button enables selection of the Options box allowing different aspects of the calendar to be altered. One of 20 borders can be chosen – the same border will be applied to all pages of the calendar. These can be further altered by choosing one of eight colour schemes.

The font used for month and date can be changed as can the starting month of the calendar. Finally, one of three formats can be chosen for the calendar – one month per page, two months per page or a full year on a page. All leave the same space for the graphic, the month displays just become progressively smaller.

Settings can be saved as a script file with the graphics not saved, just a path reference for them. Therefore you can't re-load it if the graphics have been loaded from a different disk or are no longer available. This isn't a major problem though.

There are three ways to print the calendar – one, two or four calendars per page. This simply reduces the calendars seen on screen to fit more on a page. It is simple yet gives surprising flexibility to the final printed results and how they can be used.

I had just two minor moans. One is connected to the scaling of the fonts used. On a single month calendar, the month names are automatically scaled to a similar overall size. This means that months not containing letters with descenders such as March appear in a larger font size than those which do, such as February. When viewed side by side or put together to form a full calendar, I found the differences in sizes irritating.

The second is a plea for a reset option. When a calendar for several months has been set up it's a bit of a pain to remove each graphic in turn before you can start again – it's actually quicker to quit the application and re-load it. A reset option would solve this.

Development of the package is still taking place and no doubt these and other features will be addressed.

I would have found it nice to be able to save the calendar as a draw file for instance.

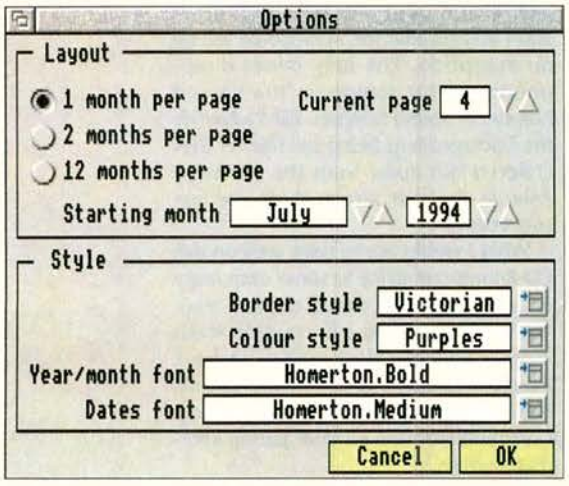
PRODUCT SPOTLIGHT

Product: Calendar
Price: £25 (inc. Primary site licence)
Supplier: Kudlian Software, 8 Barrow Road, Kenilworth, Warwickshire CV8 1EH.
Tel: 0926 851147

Summing up

As is often the case, the simple ideas are often the best. This is both a simple and very effective application. It is extremely easy to use and produces very attractive results. It's not something you would use every day but it should be tucked away in the cupboard of every school ready for when the right moment comes around.

As well as coming out of the closet at Christmas, I can also see it getting used at school fairs as a fundraiser or for mini-enterprises in schools producing personalised calendars. Buy it!



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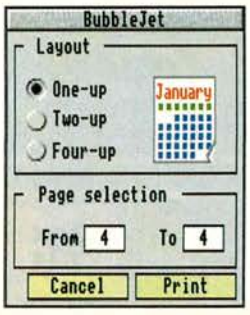

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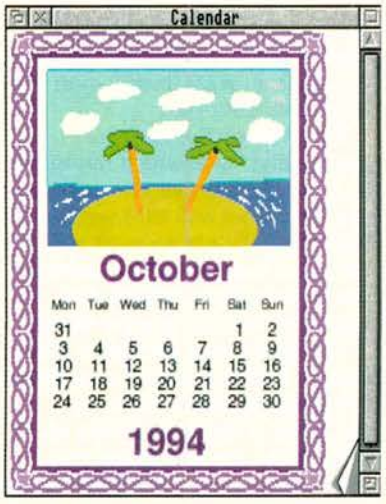

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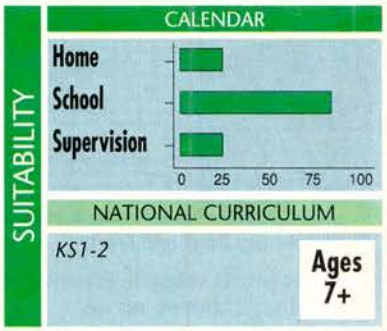

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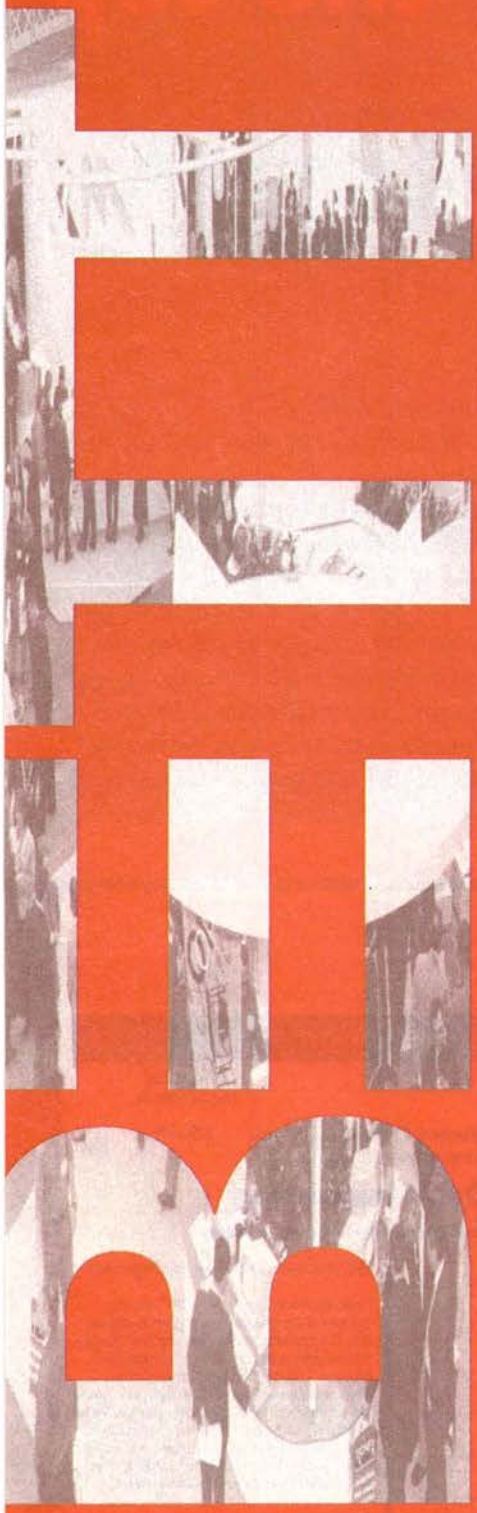

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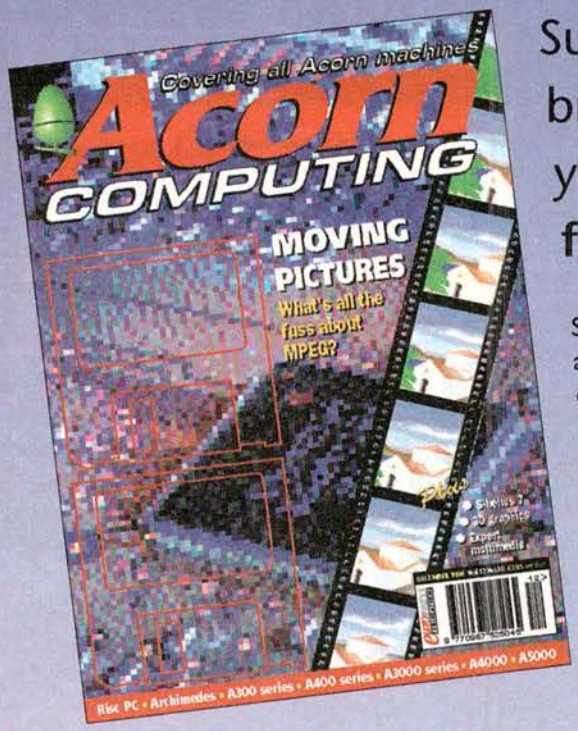

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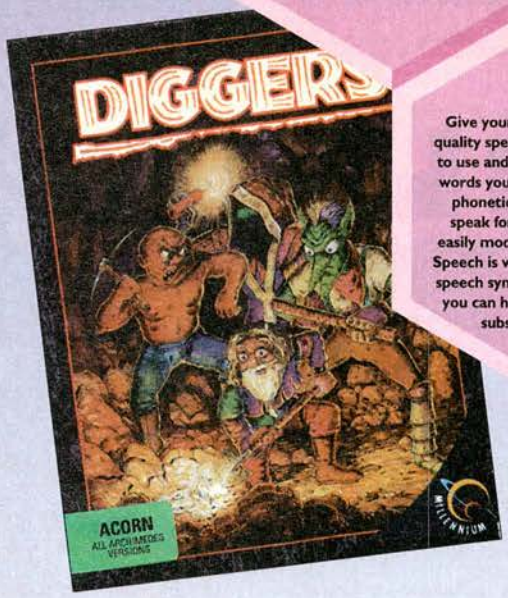

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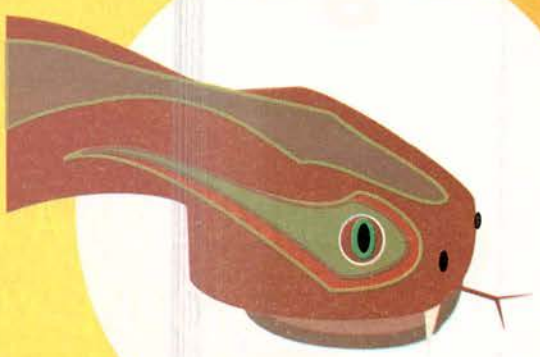

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QUANTUM SOFTWARE

Turn up the heat

Mike Cook indulges in some touchless temperature testing

ALWAYS on the lookout for new projects, I was scanning the sensor section of a component catalogue last month when I came across a pyroelectric sensor. These are normally used to make passive infra-red movement sensors, the sort that you make into burglar alarms.

However, I thought I could put it to a little more serious use. One of the experiments that my first year students perform is that of the verification of Newton's laws of cooling. This states that the rate of loss of heat is proportional to the excess temperature. The students basically plot the temperature of various objects as they cool.

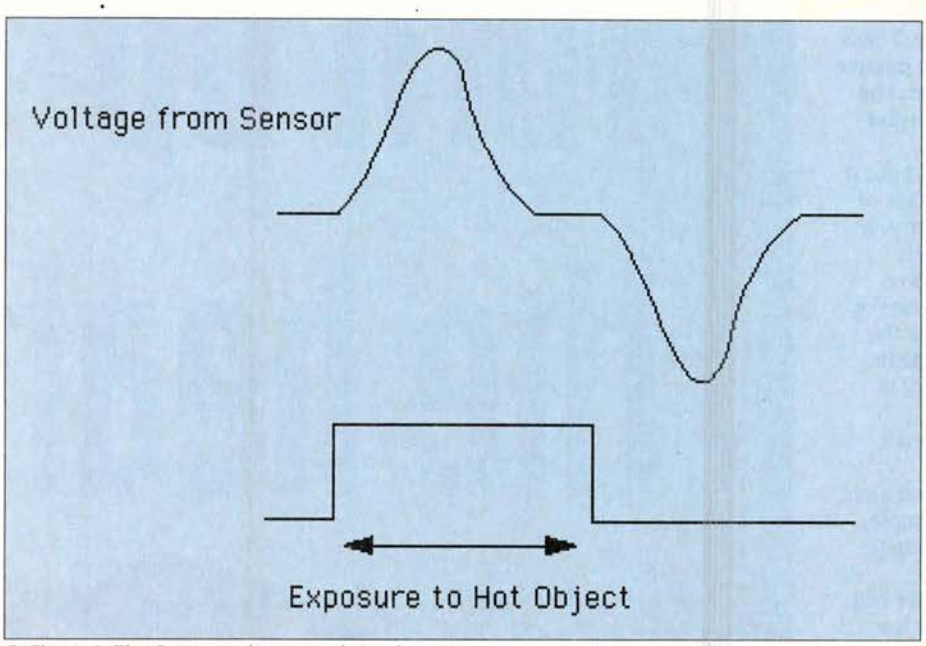
Now, as any physicist will tell you, whenever you make a measurement on a system you alter that system. As a simple example, supposing you put a thermometer in a liquid to measure it's temperature, the thermometer will be heated up and thus lower the temperature of the system. In fact, this inability to take any measurement without disturbing the system is a fundamental law of physics.

The trick of performing any experiment is to make the effects of the measuring instruments on the system as small as possible, hopefully reducing it to a negligible amount. Well, in the cooling experiments, if you could measure the temperature without any contact at all the disturbance to the system would be negligible.

Now the temperature of an object is defined as the amount of radiation it will emit. There is a curve, known as the black body curve, which describes the distribution of energy in a perfectly radiating body. The peak of this curve is used to define the temperature, so if you can measure the wavelength of this peak you can tell the object's temperature.

This is almost impossible to do without quite expensive equipment. However, if you measure the amount of radiation at any one frequency you will find that this varies quite predictably with temperature. Therefore, I thought that the pyroelectric might be useful in determining, if not the actual temperature, the change in temperature.

The E100SV1 sensor uses a ceramic ferroelectric material which produces an electrical change due to



● *Figure I: The Sensor only responds to changes*

➤

change in polarisation intensity in the infra-red region of the spectrum. It also has a FET (field effect transistor) incorporated into it which buffers the very high impedance of the sensor.

The fact that it only responds to changes means that it responds, not to absolute temperature, but to changes of temperature. This is what suits it for use as a movement detector. If you place a hot object in front of it the sensor gives out a voltage which then falls back – this is shown in Figure I.

You might think this is fine for a cooling experiment, but in fact the changes in temperature would be much too slow to record. I am sure you are thinking that there must be a solution to this or else the article is suddenly going to stop, which it has not.

The solution is to use what is known as a chopper which is constantly switched between the sensor looking at the object we want to measure and some reference object. In that way we will get a response from the sensor that is proportional to the difference between our object and our reference.

This all sounds quite grand but in practice it turns out to be remarkably simple. For our reference we simply use a piece of cardboard placed in front of the sensor. For preference this should be painted matt black, but I have found it not too critical. What we do is take a reading with the cardboard in front of the sensor and then with it removed.

We can't do this by hand for two reasons. Firstly it would be terribly boring and secondly, the movement of our hand in the sensor's view would affect the result. However, as we have a computer on hand we can use this to automate the entire process.

What we need in the way of a computer interface is a digital output to control our cardboard and an A/D (analogue to digital) converter to measure the reading. This sounds an ideal job for the I²C interface, but any other combination with these capabilities will do.

The A/D need not be very fast as the response time of the sensor is very slow. In fact, in electronic

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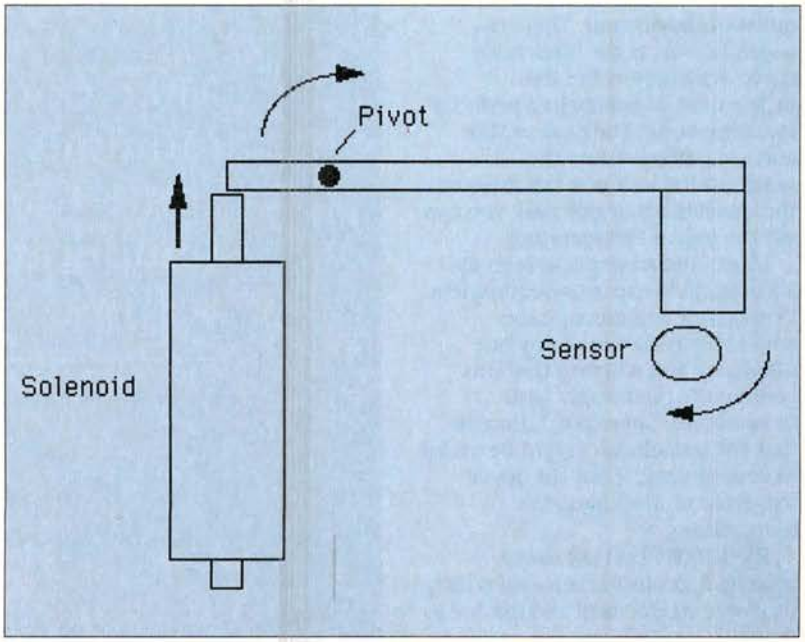


● *Figure II: Obscuring the sensor*

terms it is almost static, taking about two seconds to stabilise. I arranged the cardboard to be controlled by one of the outputs by driving a solenoid connected to a pivot arrangement. Although there is limited movement on the solenoid, if you make the lever long enough you can get enough movement to cover the active area of the sensor – the general arrangement is shown in Figure II.

The output from the sensor is very small so we need some form of amplifier to get it into range. Unfortunately, the sensor will not work at all at 5 volts, so it will need to be powered by a separate 9 volt battery. This has the danger that you might feed a 9 volt signal into the A/D which would certainly not do it any good, therefore we have to prevent this from happening.

This is done by connecting the output of the amplifier via a diode to the 5 volt reference signal of the A/D. Therefore, if the voltage should exceed 5 volts the diode will conduct and limit any further voltage rise. The electronic circuit is shown in Figure III, and all the parts are available from Maplins, the shop not the holiday camp.

Notice the variable resistor. This is used to provide an adjustment in gain of the second amplifier, so allows you to change the sensitivity of the temperature reading. I used a ten-turn helical potentiometer for this so that I could get very fine and repeatable control over the sensitivity.

The circuit is rather unusual in that it combines a conventional twin-stage amplifier with a low-pass filter and a bit of integration. The filter smoothes out the rapidly changing thermal noise and the integrator collects the small changes in the sensor's output to give a much more stable signal.

The third stage is a simple inverting amplifier so that an increase in temperature presented to the sensor results in an initial positive voltage. Finally, the solenoid is driven directly by a power FET and, as the coil requires a current of about 250mA, needs an external 12 volt supply.

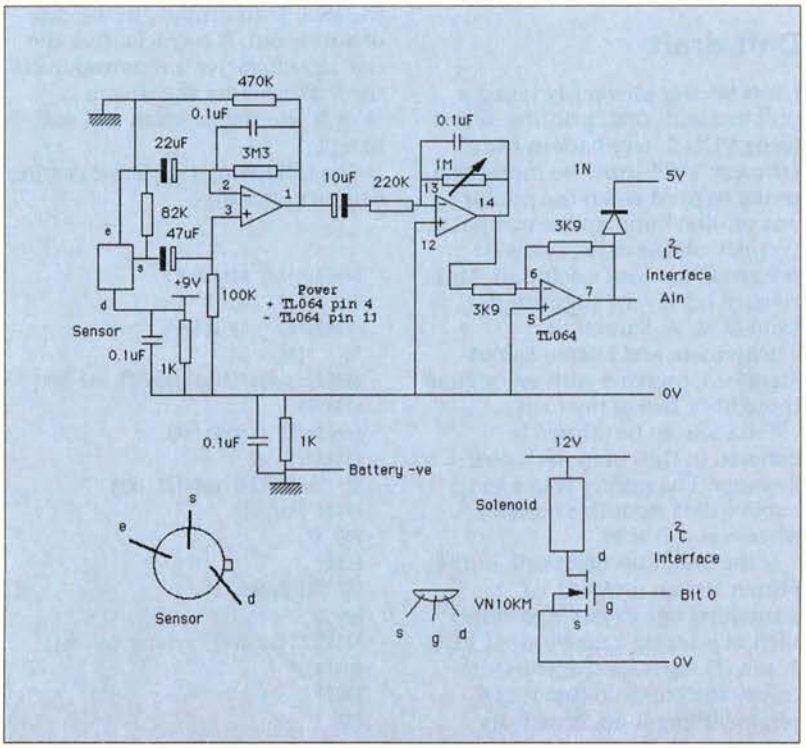
The only job remaining is the software. First of all we need to make sure that the sensor is covered and the system has settled down. Then the sensor is uncovered and readings taken from the A/D – we must take several measurements and choose the one that represents the positive going peak of the sensors output. Once this peak has been detected we can drop the cardboard in front of the sensor again.

In practice, the circuit is quite sensitive but I must warn that it is an experimental circuit, that means it can be quite fiddly to set up. The distance of the sensor from the object to be measured is important, as the further away they are the lower the readings.

I found that I could get a reading from my hand at a distance of about a metre – a soldering iron at this distance sent it off the scale. It would be useful to perform a calibration of the system so that values could be placed on the readings – remember you are measuring the difference between the temperature of the cardboard and that of the object.

In practice, the system illustrated the difference in cooling between a shiny black sphere and a sooted one – next I am going to try it to illustrate latent heat. This is where you measure the temperature of something going through a phase change, that is changing from liquid to solid. Here you see a flattening of the curve as the substance loses heat but does not change temperature while solidifying.

Other uses spring to mind like checking the lagging efficiency of your hot water tank, but that will have to wait until another time. See you next month.



● *Figure III: Electronic Circuit of the temperature measurement system*

A problem should be shared, agrees Michael Rozdoba

Confide in me

CAN I offer some assistance? More to the point, can I write an entire article made up from plagiarised lyrics? I think not. However, the sentiment is appropriate. Although TechForum may occasionally seem to turn into a monologue, it is meant to be a forum to raise and address general queries about whatever aspects of programming you want to discuss.

So, if you have any problems, questions or bugs to report, please write in and *I will make you happy, yeah, there ain't nothing I wouldn't do. . .* Sorry about that, slipped into another lyric for a moment – I keep having these flashbacks.

Where was I? Oh yes – this issue we'll sample several ingredients which have been gently simmering for the last few months. Mouth watering already? Then eat up, and don't leave any of your greens behind, or there'll be no dessert, you nasty little ingrate.

Daft draft

Chris Beesley previously raised a problem with draft printing of text using VDU 2, way back in the February 1994 issue. He found that trying to print when the printer was off-line hung up the computer.

Quick off the draw, I now present Chris with a solution. This is based on several suggestions from M. R. A. Barnett of Cheltenham and Darren Salt of Stakeford, together with an original thought or two of my own.

Data sent to be printed is buffered in the computer's own memory. The printer is free to remove data from this buffer whenever it is able.

If the buffer becomes full, or the printer stream is closed, or something else causes it to empty, such as printing a newline via VDU 2, the OS waits for the printer to empty the buffer so that it can resume filling it up. If such an event occurs, and the printer is not responding, the program hangs as the buffer will never be emptied by the printer – this is a problem particularly in Wimp applications as *Escape* is usually disabled, so when the application hangs up, it can't be terminated and never returns to Wimp_Poll, thus locking the whole desktop up.

However, you can avoid this problem by first checking to see if the printer is in a responsive state. This involves sending a non-printing character, and waiting until either it is removed and discarded by an active printer, or until some fixed waiting time expires.

If the character is removed you are free to print, otherwise time ran out, the printer is not responding and printing should be abandoned.

The key to the method is to avoid letting the OS hang up while performing this initial test – so don't close the stream, fill the buffer or print a newline, during the trial. Furthermore, in the case of a time-out, it is crucial that the one test character is removed from the buffer **before** the stream is closed, else the program will still hang up.

The following short Basic routine demonstrates this:

```
FreeBuf1% = ADVAL(-4)
VDU 2,1,0
FreeBuf2% = ADVAL(-4)
T% = TIME
WHILE FreeBuf1%<>FreeBuf2% AND TIME
-T%<500
FreeBuf2% = ADVAL(-4)
ENDWHILE
IF FreeBuf1%=FreeBuf2% THEN
PRINT "Hello!"
VDU 3
ELSE
SYS "OS_Byte", 21, 3
VDU 3
PRINT "Time out!, printer not resp
onding."
ENDIF
END
```

You'll find a fully commented version of this on the MegaDisk in directory *Printing*.

Chris has also mentioned that the A5000 Welcome Guide – 1991 – contains an error re the figure on page 78 detailing the mouse port connections. He claims pins 5 and 6 have been erroneously interchanged and that in fact pin 6 is the 5 volt supply and pin 5 is XDIR.

So, if you need this info, be forewarned and tread carefully – though the first thing you should do is ignore me and get advice from someone who knows about hardware.

Animated anathema

Wells' Tim Williams asked for a basic explanation of flicker-free animation using bank switching. This is most easily done with a few examples, so on the MegaDisk you should find some almost trivial Basic programs, in directory Anima, which demonstrate simple animation using bank switching and synchronisation.

Of course you can only use this technique in a single-tasking environment, but for most games and graphic demos this isn't a problem. *Bounce1* thru *4* will bounce a few deserving heads around a Mode 12 screen.

Before running them, ensure you double click on *ClickMe1st* to set the current directory, so that they can find the palette and sprite files which they need. All four programs carry out the same task, but use different methods to deal with, or fail to deal with, flicker.

Bounce1 takes no measures to avoid nasty effects and produces very bad flickering.

Bounce2 synchronises redraws by waiting for the VSYNC event, via OS_Byte 19 – the SYS 6,19 command.

This slows down movement, and cuts out some aspects of the flickering. In this case it isn't

enough on its own, as the plotting takes longer than is available while the CRT beam flies back to scan the next frame. Sometimes you can get away with just this – compare Bounce1 and Bounce2 after altering them to bounce a single head each.

Bounce3 abandons VSYNC and uses bank switching – only two banks are needed, numbers 1 and 2. OS_Byte 112,b% makes bank *b%* the one to be written to by the VDU drivers. OS_Byte 113,3-b% makes the alternate bank (3-b%) the one to be displayed.

By displaying one bank while writing to the other, then swapping them over and repeating the process, animation can be achieved without flicker due to redraws. Although this produces the best results so far, there is still some flicker, occurring because the banks may be swapped while the CRT beam is in the middle of a frame.

Notice also the ON ERROR statement to trap errors – it is essential that banks are reset on an error, else you can end up with a halted program, and both the error message and cursor on the bank which you can't see.

Bounce4 provides the final solution to the animation problem. It uses bank switching and VSYNC to synchronise when to swap banks.

Stacking comes unstuck

Michael Jagger (*really*) recently posed a question in *Problem Solved* concerning code he had written as an absolute file which crashed when run, though if loaded by Basic into DIMmed memory and then CALLed seemed to behave okay.

Rob Wyatt wrote in to explain the cause, and this has been passed down to TechForum. Due to instruction pipelining in the processor, the error reported with pc=&8008 can be due to the instruction at &8000, which may be attempting to store some registers on the stack. With a Basic CALLed subroutine this is legal, however when some code is executed as an absolute file, there is no stack.

Since such code should be exited via XOS_Exit, and not via a return address in r14, there is no need to preserve any registers, so a stack may not be needed. However, if you want a stack for other calculations and temporary register storage, you can set one up by pointing r13 to any free block of memory.

Utilising the end of your application's memory is the usual method, via:

```
SWI     XOS_GetEnv
MOV     r13, r1
```

If you ensure your code starts with this, and remember to exit by calling XOS_Exit, you should find it will run correctly.

Double division

In September's TechForum I described a high speed means to divide by an arbitrary constant in assembler, similar to the method used to multiply by a constant.

This required some hand-crafted assembler for each constant, so I issued the challenge to any willing masochist to construct a macro which would generate such code automatically.

We've had two successful entries – from **M. R. A. Barnett** and **Mike Evans**. At brief perusal, both seem to do the job. There were a couple of small bugs. M. R. A.'s used a GT comparison which should have been GE and Mike's Division_a demo had one typo. However, overall, both were very impressive.

Although I haven't been able to convince myself they are 100 per cent reliable, that's largely down to my limited brain power, and I certainly can't spot any obvious errors in the algorithms used.

M. R. A.'s is easier to follow and quite elegant with its use of recursion. Mike's macro is a little more convoluted; however, as it tries to optimise certain features, it seems to produce slightly faster code.

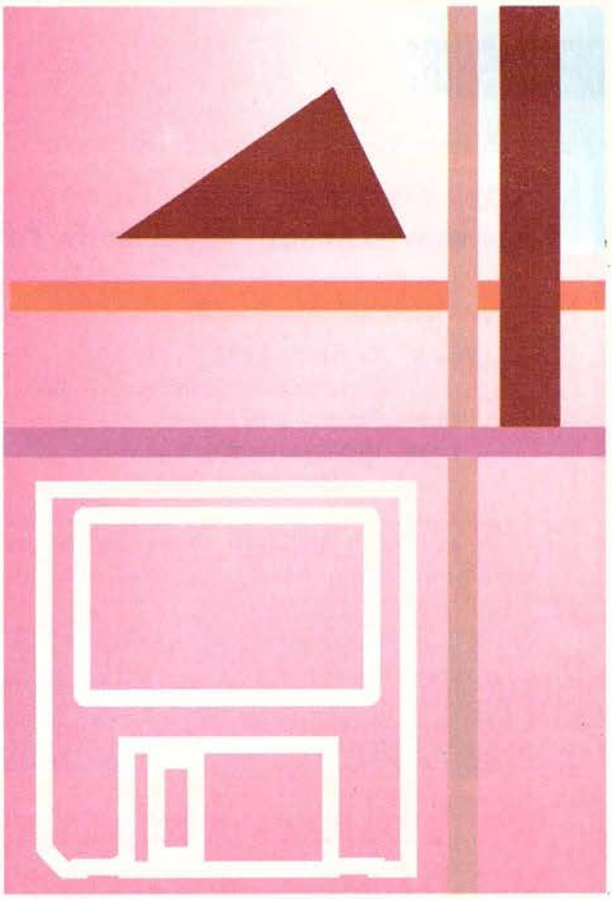
I think I'll have to declare them joint winners. The prize? – No Mike, you can't have a Risc PC. Instead, you each earn the unending respect of all who gaze upon your code.

Both macros only work with positive numerators, though it's a trivial job to amend either so that it inserts the instructions needed to remove and subsequently reimpose sign, if required, as I did in the original examples from September.

You'll find the macros on the MegaDisk in directory *Divy*.

Barnett contains one demo which compiles some Basic assembler test code to a text file, using the macro. This is saved back to disk and then executed – so remember to move it to a writable disk before running it.

Evans has Mike's two almost unmodified programs – Division_a and Division_p. The former assembles and tests code using his macro, while the latter prints out the assembled code and some useful info, such as the divisor reciprocal's binary expansion and the length of any repeat pattern.



LZW data detailed

Warrick Buchanan from Dunbartonshire has helpfully written in with some information concerning LZW compression.

In the August 1994 issue I mentioned that I couldn't discover how the method worked, and although I subsequently figured this out myself, as explained in the October column, I still haven't come across any books on the subject.

Warrick informs us that *The Data Compression Book*, by Mark Nelson (ISBN 0-13-202854-9) contains a detailed description of LZW as well as many other techniques.

In return, he'd like to know if a book exists which describes fast texture mapping routines, as seen in games such as Doom. Can anyone help him?

Stop me, buy one!

Don't forget, 42 may be the answer, but we have yet to discover the questions. If you have a question, it is your duty to society to write in, so do it NOW.

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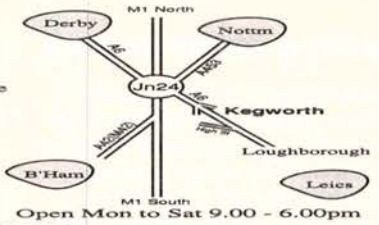

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In the palm of your hand

Palmistry: What the future may hold

HAVE you ever had your palm read? Well, now there's a program that will do basic palm-reading for you – and for your friends. Palmistry is an ancient technique for divining personality traits and foretelling possible futures.

This program won't tell your future but you can see how accurate an insight it has into your personality. And just to show it's not cheating by giving suggestive comments for you to follow, you input the positions of the various lines on your hand, before it tells you what it means.

The program investigates three of the major lines on your hand – the Life-line, Head-line and Heart-line – revealing how their positioning, length, curvature and forking relate to your character.

Just run the program then follow the on-screen instructions. In most cases you'll be asked to select from three positions of lines on your right hand – a star moves from option to option and you press the space bar when it's on the right one for you.

At the end of the program you'll get a summary covering all sorts of areas such as ambition, vitality, strength of character, awareness, reason, creativity, imagination, emotion, idealism and practicality.

A printout is possible but you'll have to add your own print routines at the end of the program. Don't change the line numbers as they are used extensively in conjunction with the DATA statements.

L. N. Hampshire

Public Domain

Pantheon: The game consists of two parts: The pre-game is a scrolling shoot-'em-up arcade game while the second part is a huge arcade-adventure game featuring you as Sergeant Silver in ancient Greece, and later in outer space.

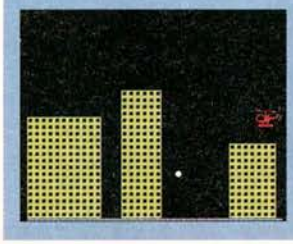
Loopy Loop: Drive another light-cycle as good as Tron, two player version also available.

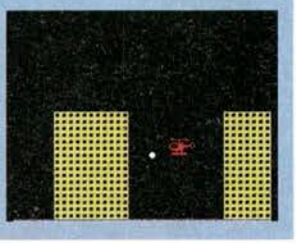
3D Animation: Ripples in water.

Helicopter: A touch of Blue Thunder

It may not be the greatest or most original game in the world but Helicopter is fast and furious. You have to manoeuvre your helicopter in and out of the skyscrapers, picking up the asterisks that appear between them. You have movement in four directions with the usual keys (Z, X, / and :) as the screen scrolls to the right.

David Johnston

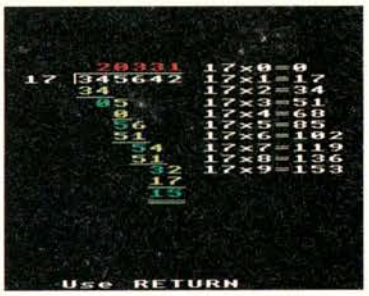




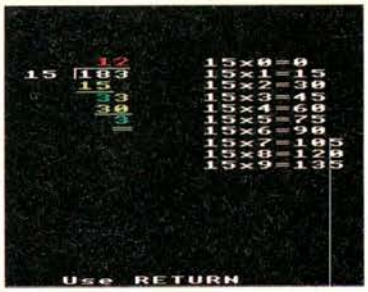
Sums: Arithmetic tutoring

These programs are intended to improve the mechanics of doing the four fundamental operations of arithmetic by emulating the manual methods. In addition, they can promote neatness in setting out the solutions.

They do this in a user-friendly way which allows you to proceed to the end of the solution without getting stuck by, for example, being unable to respond to a prompt.



Each program has two modes: Manual and Auto. The first of these can be used in conjunction with sets of examples from course books or made-up examples. The computer prompts for the numbers to be used and then proceeds with those. In auto mode the program generates examples at random.



The spacebar is used to step through the solution as fast or as slow as you want – press Return at the end to go to the next example. Additional information such as multiplication tables are displayed at appropriate points in the solution, this can help in working out the next step without getting bogged down.

Alan Riddell

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If there seems to be a fault with one of the programs please contact us at the magazine by post describing your machine set-up and exactly what happens when you run the problem program.

RiscCAD

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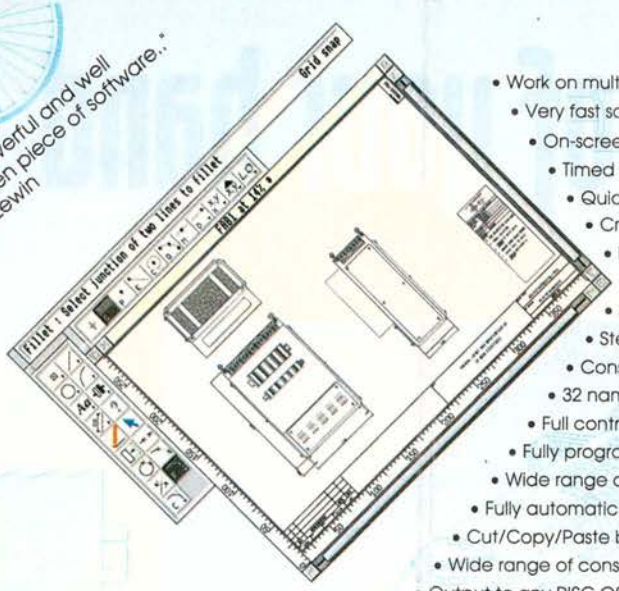

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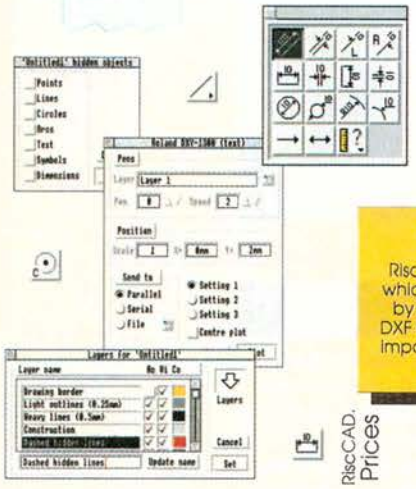

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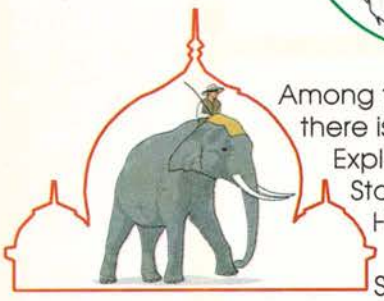

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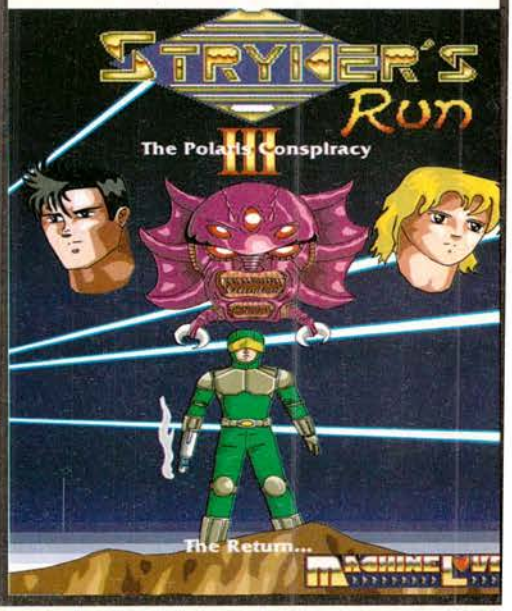

Financial futures

Bull or bear? Mike Williams reports on shares software

WHILE not everyone has an extensive share portfolio, the Government's privatisation issues – and, more recently, low interest rates – have encouraged people to consider these forms of investment. If you're still not sure, a package like Apricote Studios' Shares provides the wherewithal to try investing *on paper* without committing any real money.

Now into release three, Shares allows you to record details of shares purchased and sold – including unit trusts and investment trusts – together with details of dividends received and relevant prices over a period of time.

Once installed, Shares operates from a main menu window. It provides sections dealing with purchases and sales, prices, and dividends. In all three cases you can enter new items, edit existing information and view data. It also includes some provision for coping with bonus and partly paid shares which have been a feature of privatisation issues. More esoteric transactions such as script issues, splitting and so on must be handled by Shares's standard functions, or not at all.

While the use of these features is reasonably straightforward, the various windows used employ many non-standard methods for control and input to an extent which I feel is not really acceptable. It also means that Shares is largely unable to benefit from Acorn's NewLook, and on a Risc PC its windows have a decidedly coarse and flat appearance.

Shares will accept data dragged to it in CSV format. This makes the inclusion of historical data, particularly on prices, potentially much easier, but I found the format required for this operation needed a considerable amount of time-consuming editing to make it work.

Value for money?

If storing data was all that Shares did, its purchase would not be justified. It is in its analysis that a product like this comes into its own. You can produce a summary of your portfolio, and a more detailed evaluation of each individual holding. More importantly, Shares also enables you to produce graphs, though only for a single holding, or for one relative to a second, which allows comparison with indexes like the FTSE100 for example. Filters enable you to select the company (or companies) and periods of time which you want to analyse.

The graphs are interesting but could be improved. An insistence that the vertical scale always starts from zero means that a lot of space is wasted and the fluctuations are too compressed to be that helpful. Moving averages can be displayed for any period (measured in days), but only one moving average at a time, which is a pity. Professional chartists tend to use 4, 10 and 40 week moving averages together. One good point is that Shares copes well with irregularly recorded prices – no problem if you are away on holiday for a while. In addition, all tables and graphs can be printed out if required.

PRODUCT SPOTLIGHT

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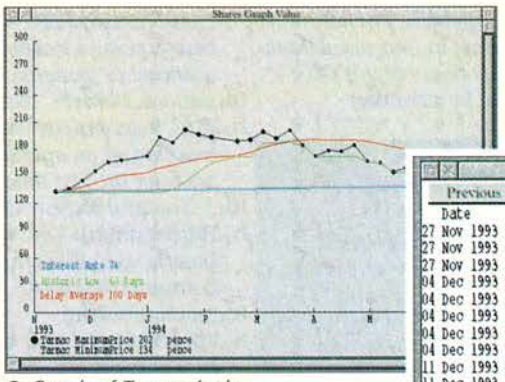
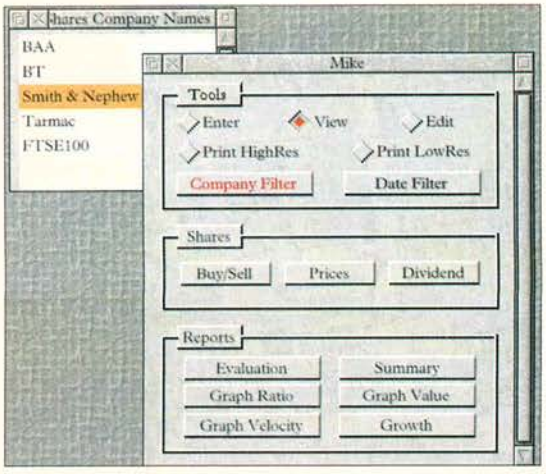
Summing up

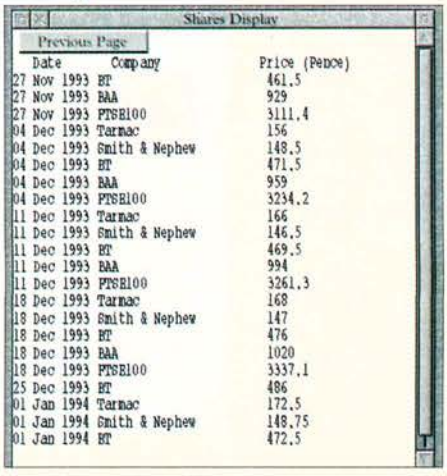
What Shares does, it does adequately, but a redesign of the user interface to bring it into line with current RISC OS standards, and improvements to the quality and flexibility of the graph displays would be a considerable fillip to the software's appeal. That said, for its price, Shares does a workmanlike job, and while it won't make you rich, it will help you keep track of your investments, for real or as a game.



● *Graph of Tarmac's share price for six month's*



● *Shares main window plus company filter*



● *Typical display of share prices, including FTSE100*

Printing rubbish

I AM having problems with my A4000 and Canon BJC 600 printer. I also bought a Computer Concepts TurboDriver which I duly installed, but the printer did not work. Computer Concepts said that it had been having problems with the TurboDriver and the A4000 which was believed to be connected to the ARM250. I was advised to use the standard drivers. I loaded the Acorn driver and tried to print some Impression documents – the results were a jumble of letters and symbols.

This time I called Acorn Customer Services who told me that the problem didn't lie with the ARM chip but with the way I had configured my machine or a module I had installed. When pressed as to whether he had tried the driver and printer on an A4000 it was admitted that Acorn hadn't.

I can honestly say that I was very disappointed with the advice I was given and am now in a dilemma as to what to do and who to ask next.

Peter Holliday, Chalfont St Peter, Buckinghamshire

Printing has always been the biggest problem with computers, I'm not really sure why. Anyway, in your case I think it's probably safe to say that if CC says there might be a problem regarding the ARM250 there probably is – after all there were problems with the Risc PC which have only just been sorted out.

The TurboDrivers do lots of interesting things to go faster and problems may well arise. There's no reason to suppose that Acorn Customer Services would know the TurboDriver details.

My semi-educated guess would be that you may need a non-TurboDriver cable. The cable supplied is effectively a dongle and ensures that someone else can't pirate the TurboDriver software. There is a module supplied with the product that allows the standard drivers to work.

Across the pond

IS the Risc PC card compatible with the SoundBlaster cards? I realise you may have covered this already, but it's hard to keep up in the States.

Russell Juckes, New York

Provision is being made to allow PC expansion cards to be plugged into a Risc PC with a PC card, however I believe that some of the new Acorn sound cards will provide SoundBlaster emulation.

Ignorance is bliss

I ENCLOSE an article clipped from the Sunday Times Business Technology section dated 25 September entitled *Apple serves up tasty chip*. I am frustrated by the ignorance of the public press concerning computing technology, in particular the recent surge of interest in RISC. For instance the author of this article (David Hewson) states:

...traditionally RISC has been expensive technology restricted to specialist work stations. PowerPC places RISC in a common desktop machine, at an affordable price, for the first time.

You and I know that this is rubbish – Acorn having used RISC in common desktop machines at an affordable price for the past eight years – but does anybody else? Most likely not. This is a most unsatisfactory state of affairs as Apple is unfairly taking credit for Acorn's earlier achievements. I have written to the Sunday Times pointing out the errors. I believe that it is necessary to fight, on all fronts, the barrage of ignorant and incorrect information circulating the national press. I hope others will join me.

Ian Woollan, Radcliffe, Manchester

This particular piece in the Times surprises me on two counts: Firstly the Times has been busy promoting Acorn machines and special Parent Power weekends in the past, they were the first people to print anything about Online Media, so it could be argued that they should know better.

The other aspect is that the words in this supposed article *bear more than a passing resemblance to those in the press release sent out – and later retracted – by Apple. I wonder if I am alone in expecting a greater depth of knowledge and professionalism from feature writers of the* quality *papers?*

THE SUNDAY TIMES • 25 SEPTEMBER 1994

Apple serves up a tasty new chip

RISC

It has made a leap into a new kind of PC technology with scarcely a slip

Basic issues

I HAVE an A3000 with RISC OS 2. I program in Basic and would like to use the date from the machine in numerical form in a

What's an Acorn

MANY members of Acorn's marketing department who read this letters page will have noticed that several readers wish they would get their *arcs* into gear and start selling the Risc PC as if their jobs depended on it, which they do. As yet there has been no sign of advertising in the press in general and our TVs remain Acornless. This is all old news but the other day something happened which made me realise the danger Acorn is in by not advertising to the world at large.

I am a junior member of the computer department of a large company at their head office – over 250 PCs on a Novell network linked to other networks in different offices in Reading and worldwide – and we had been having problems due to the fact that we have a wide range of machines on the one network, often with different memory management settings and all the other stuff PC users have to sort out. I mentioned the advantages of Acorns in this area: Dynamic memory, the lack of the 640k base memory limit, the full works. The response? *Acorn? Good lord, I'd no idea it was still in business.*

If a manager of a large IT department – though in the business world – can be under the misapprehension that Acorn is no longer trading, how long will it be until he is right?

Unless Acorn starts advertising to a wider audience, they will find themselves relegated to niche markets being slowly eroded by PCs. I'm not suggesting that Acorn abandon niche markets – that would be a different form of corporate suicide – but they must try to expand into new areas.

A great many PC users are unhappy with many aspects of their machines Dos, Windows and the regularity of crashes, and I speak from experience being involved in computer support. There is a market there for Acorn to expand into if it can sell to the PC user as well as to the PC buying manager. The effort that has gone into producing a masterpiece of technology like the Risc PC must not be allowed to go to waste.

Mike Sandells, Reading, Berkshire

The points raised in this letter are found again and again in our postbag and we have spoken to Acorn about it ourselves. Its budget is small – very small. It does, however, get a great deal of positive press and has made available to us its clippings book with items in Management Today, Accounting Technician, Computer Shopper, What PC?, Computer Buyer, Family Circle among others in September alone.

In addition, Sibelius is having a powerful impact on the professional music industry the world over. However, there is a long way to go. Yes you can demand Acorn do better but it's up to all of us to keep pushing.

It's all very well for Acorn to jump up and down saying "Our machine's better" but the individual PC manufacturers are doing that all the time. From the experiences we and others have had, the only real way to be convincing is to ***demonstrate*** *the power.*

Perhaps more frightening, and more of a concern to Acorn, was a call I had via a colleague on a PC title from a parent who wanted to know what this strange A4000 was that his child's school had been given. The teachers knew nothing about it and thought that there was no software available. Yes the teachers had heard of Acorn but ...didn't they go out of business?

couple of my programs.

Is there a simple procedure which would extract the date for me in either string or numerical form?

William Old, Chiswell Green, Hertfordshire

The program below shows the simplest version of what you want. There are other options depending on what you set ?Q% to before the call.

```
DIM Q%256:?Q%=0
SYS "OS_Word",14,Q%
PRINT FNs(Q%,24)
END
DEF FNs(M%,N%)
LOCAL I%,S$
FOR I%=M% TO M%+N%-1
 S$+=CHR$?I%
 NEXT
=S$
```

Bargain offer

IN REPLY to Damian Jones' letter (October 1994) request for information on bargain price games for the BBC Micro, I'm pleased to inform him that Superior Software is offering a large range of its titles for the BBC Micro/Master and Electron computers – including all of the Play it Again Sam compilations – at half price until November 20th.

The only requirement for this Autumn offer is that at least two titles are ordered.

Steve Hanson, Superior Software

You can get full information from Superior Software PO Box 6, Brigg, South Humberside DN20 9NH. Or ring 0652 658585.

Language and literacy

WITH respect to the letter in *Acorn Computing* October from Ken Knight about punctuation programs, I would like to draw his attention to a program we produce called Punctuate.

Users start with the basic principles and move from full stops to colons and dashes. Teachers can put in their own sentences and the program will print out worksheets for work away from the computer.

Glyn Royds, Xavier Educational Software

Punctuate costs £32 and is available from Xavier Educational Software, Department of Psychology, University College North Wales, Bangor, Gwynedd LL57 2DG. Tel: 0248 351151 ext 2616.

Printing error

IN the August '94 issue there was a review of colour printers. The Star SJ-144 colour printer should be driven by the Canon BJC-800 driver not the Epson LQ-860 as stated. Using the BJC-800 driver reduces the printing time and the printer resolution is 360x360dpi instead of 180x180dpi.

Simon Wilson, Raunds, Northamptonshire

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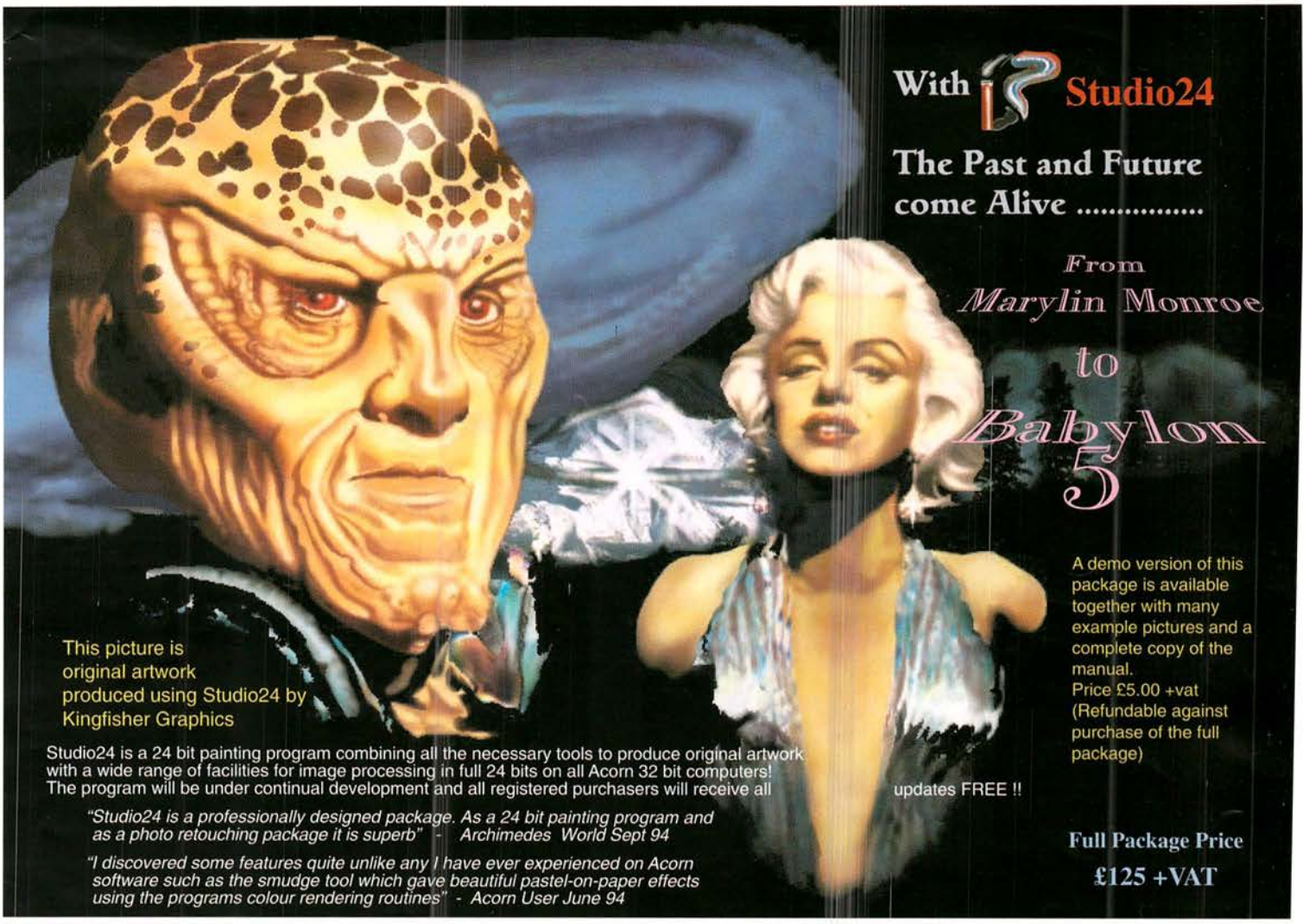

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Please 'phone for more information and details of special computer package deals which may be available. If you are undecided as to what hardware you really need then we can provide professional advice and assistance to help you choose the right system for you.

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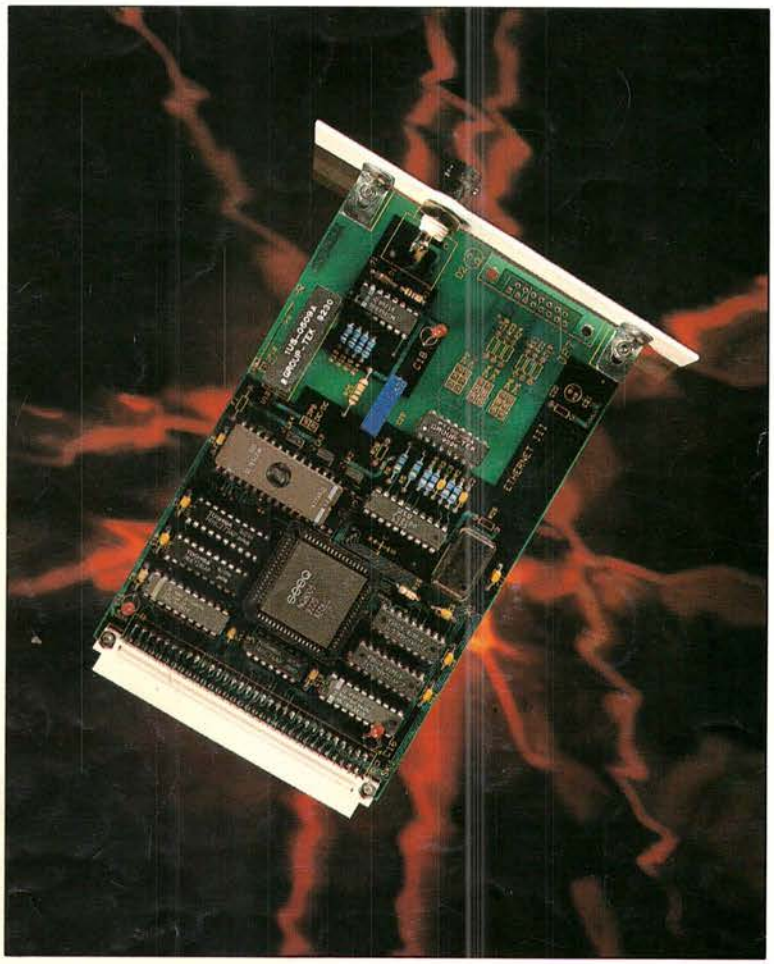

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